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SERVICE MANUAL 2238B

marantz

model 2238B

Stereophonic Receiver

TABLE OF CONTENTS

1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 2238B Stereophonic Receiver.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operations in the receiver.

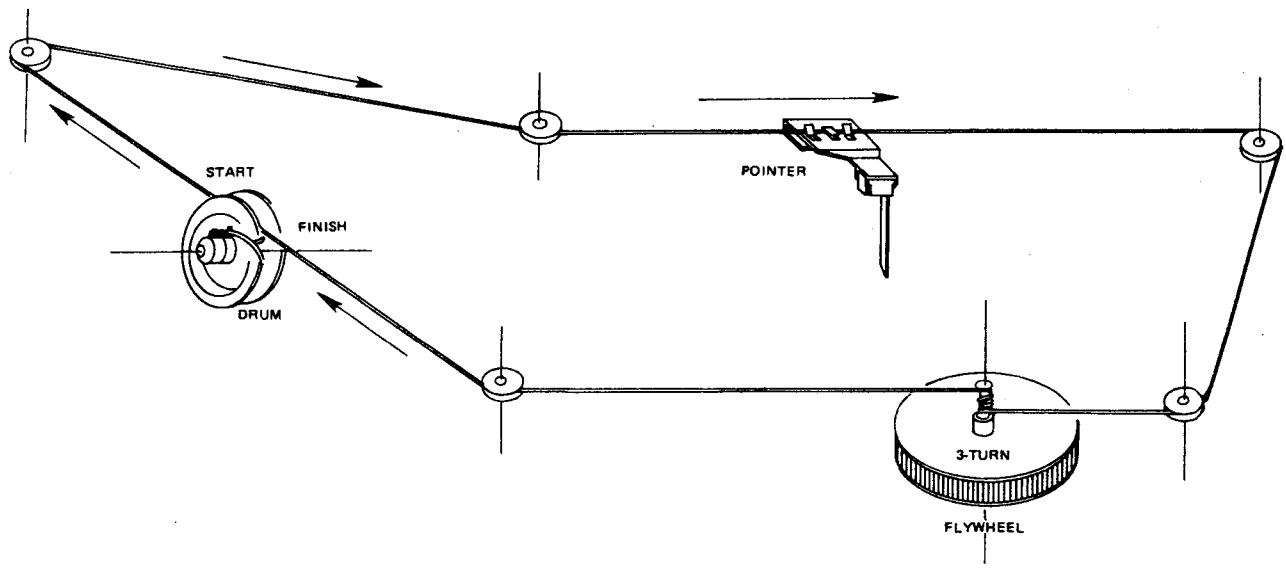
The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can usually be obtained through local suppliers.

2. SERVICE NOTES

As can be seen from the circuit diagram, the chassis of Model 2238B consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. **FM Front End** ..... **mounted on P.W.B. P100**
2. **Tuner** ..... **mounted on P.W.B. P200**
3. **Phono Equalizer Amp & Selector** ... **mounted on P.W.B. P400**
4. **Main Amp, Power Supply & Speaker Switch** ..... **mounted on P.W.B. P700**
5. **Tone Amp, Mono, Hi Filter, Tape 1 Monitor & FM 25 μS** ..... **mounted on P.W.B. PE01**
6. **Dial Lamp** ..... **mounted on P.W.B. PZ01**
7. **DLB-1 Socket** ..... **mounted on P.W.B. PK01**

Figure 1. Dial Stringing



3. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model 2238B Receiver.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Use with AM Signal Generator
FM Signal Generator MPX Signal Generator	Sound Technology Model 1000A	Signal source for FM alignment Stereo separation alignment and trouble shooting
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700A	Distortion measurements Sinewave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting and ASO alignment
Frequency Counter	Fluke Model 1900A	MPX Oscillator adjustment (VCO)
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to amplifier
AC Ammeter	Commercial Grade (1~10A)	Monitors amplifier output under short circuit condition
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to amplifier
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B–10A	Adjusts level of primary power to amplifier
Shorting Plug	Use phono plug with 600-ohm across center pin and shell	Shorts amplifier input to eliminate noise pickup
Output Load (8 ohms, ±0.5%, 100W)	Commercial Grade	Provides 8-ohm load for amplifier output termination
Output Load (4 ohms, ±0.5%, 100W)	Commercial Grade	Provides 4-ohm load for amplifier output termination

4. AM ALIGNMENT PROCEDURE

4.1 AM IF ALIGNMENT

1. Connect a sweep generator to the L153 and an alignment scope to the J233.
2. Rotate each core of IF transformers L155 and L156 for the maximum height and flat top symmetrical response.

4.2 AM FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Set AM signal generator to 515 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil L154 for maximum audio output.

2. Set the signal generator to 1650 kHz. Place the tuning pointer in the high frequency end and adjust the oscilator trimmer on the oscillator tuning capacitor for maximum audio output.
3. Repeat steps 1 and 2 until no further adjustment is necessary.
4. Set the generator to 600 kHz, tune the receiver to the same frequency and adjust a slug core of AM ferrite-rod antenna L001 for maximum output.
5. Set the generator to 1400 kHz and tune the receiver to the same frequency and adjust the trimming capacitor on the antenna tuning capacitor for maximum output.
6. Repeat procedures 4 and 5 until no further adjustment is necessary.

NOTE

During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

5. FM ALIGNMENT PROCEDURE

5.1 FM FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Connect an FM signal generator to the FM antenna terminals and oscilloscope and an audio distortion analyzer to the TAPE OUT jacks on the rear panel.
2. Set the generator to 87.4 MHz and provide about 3 to 5 μV. Place the tuning pointer at the low frequency end by rotating the tuning knob and adjust the pitch of oscillator coil L107 to obtain maximum audio output.
3. Set the generator to 109 MHz and provide about 3 to 5 μV. Rotate the tuning knob and place the tuning pointer at the high frequency end and adjust the trimming capacitor C121 for maximum output.
4. Repeat steps 2 and 3 until no further adjustment is necessary.
5. Set the generator to 90 MHz and tune the receiver to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the pitch of antenna coil L102 and RF coil L104 for maximum output.
6. Set the generator to 106 MHz and tune the receiver to the same frequency. Decrease the signal generator output until the audio output level decreases with the decreasing generator output. Adjust the trimming capacitors of antenna and RF tuning circuits for maximum output.
7. Repeat steps 5 and 6 until no further adjustment is necessary.
8. Adjust the primary core (lower core) of discriminator transformer L202 so that the center tuning meter pointer indicates its center at no signal applied. Set the FM signal generator to 98 MHz and increase its output level 1 kμV and tune the receiver to the same frequency so that the center tuning meter pointer indicates its center. Adjust the secondary core (upper core) of L202 for minimum distortion.

5.2 STEREO SEPARATION ALIGNMENT

1. Set the FM signal generator to provide 1 kμV at 98 MHz. Tune the receiver to the same frequency so that the center tuning meter pointer indicates its center. Then turn off the modulation of the generator, connect a frequency counter to test point J229 and adjust R301 so that the frequency counter may precisely read 76 kHz.
2. Modulate the generator with stereo composite signal consisting of only L or R channel (of course a pilot signal must be included).
3. Adjust the trimming resistor R317 for maximum and same separation in both channels.

5.3 MUTING THRESHOLD ADJUSTMENT

1. Set the FM signal generator output to provide 12.5 μV (IHF) at 98 MHz and tune receiver to the same frequency. Adjust the trimming resistor R212 for the threshold level of 12.5 μV. (During this adjustment turn the FM MUTING pushswitch "on".)

5.4 FM DOLBY LEVEL ADJUSTMENT

1. Set the FM signal generator to provide a 400 Hz, 50% modulated 98 MHz mono signal, at 1 kμV output. Precisely tune the receiver to 98 MHz.
2. Depress the FM 25μS pushswitch, and adjust R215 until the outputs of both channels are 580 mV.

6. POWER AMPLIFIER ADJUSTMENT

Connect a VTVM between R763(+) and R765(-) and adjust the trimming resistor R731 until the VTVM reads 23 mV DC. And next, connect a VTVM between J717 and J714(GROUND) and adjust the trimming resistor R711 until the VTVM reads 0 mV DC. Do over again. For the other channel, connect the VTVM between R764(+) and R766(-) and adjust the R732 for the same reading, and connect the VTVM between J718 and J714 and adjust the R712 for the same reading. Do over again.
When adjusting a DC offset voltage, the switch of the SPEAKER SYSTEM-1 must be turned on.

7. POWER SUPPLY ADJUSTMENT

Connect a VTVM between J722(+) and J724(-) and adjust R787 until the VTVM reads 35.0 V under no signal condition.

● EUROPEAN MODEL

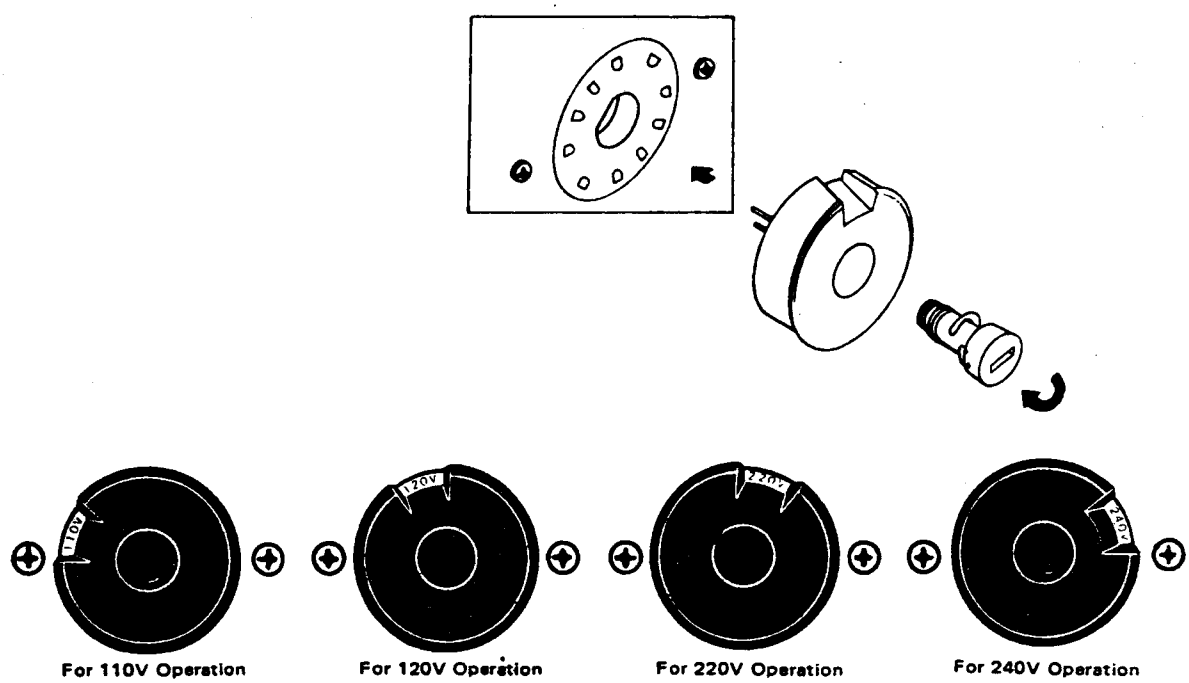
8. VOLTAGE CONVERSION

The European version of the Model 2238B is equipped with universal power transformer that may be adjusted to operate at 110 V, 120 V, 220 V or 240 V AC at 50 to 60 Hz. To convert the unit to a different power source voltage, reposition conversion plug as shown in Figure 2.

CAUTION

DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

Figure 2. Voltage Conversion Chart



For 110V Operation For 120V Operation For 220V Operation For 240V Operation

9. FTZ REGULATION

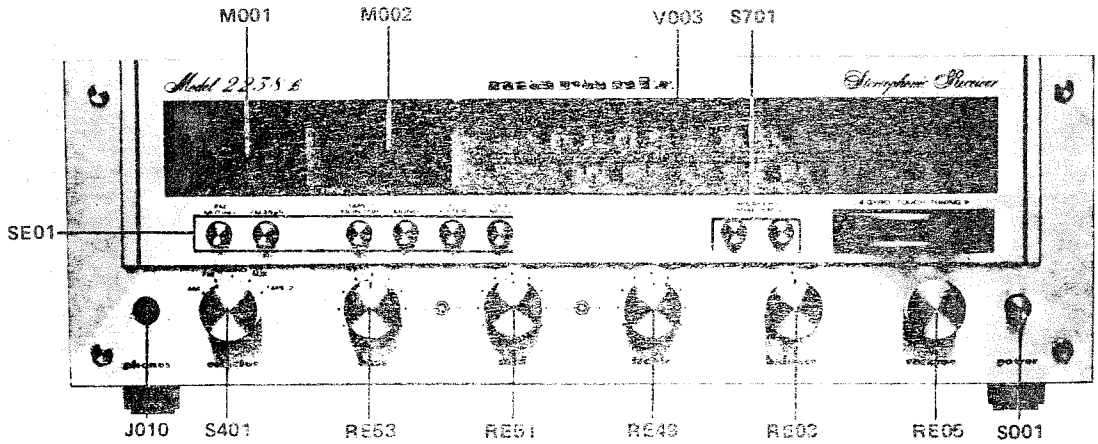
Instruction for the use in the range other than specified in FTZ codes

Achtung für die Leute, die in dem Gebiet wohnen, wo die FTZ-Bestimmungen vorherrschend sind.

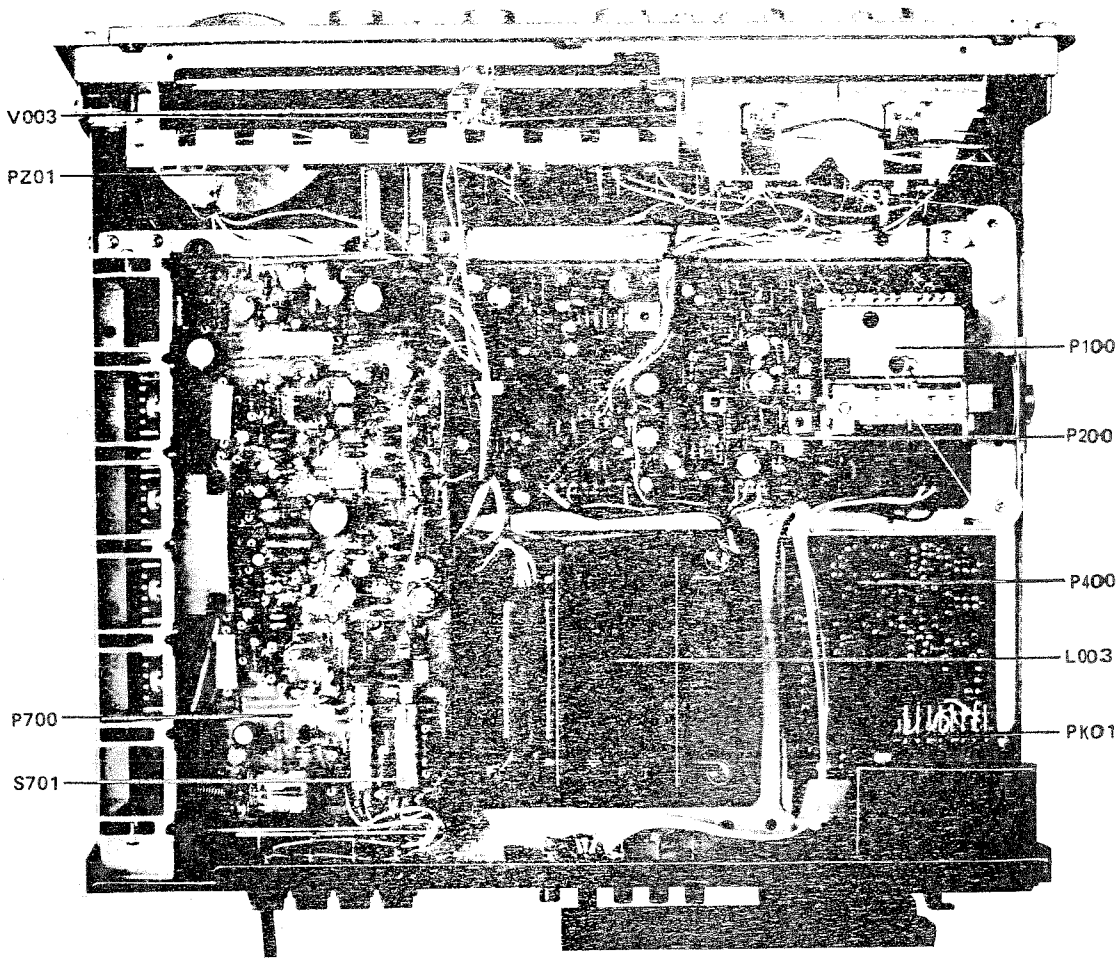
Sollte das Gerät auch für Frequenzen außerhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatorspule (in der Abbildung mit „FTZ" gekennzeichnet) so zu korrigieren, daß er den Bestimmungen entspricht.

10. MAJOR COMPONENT LOCATIONS

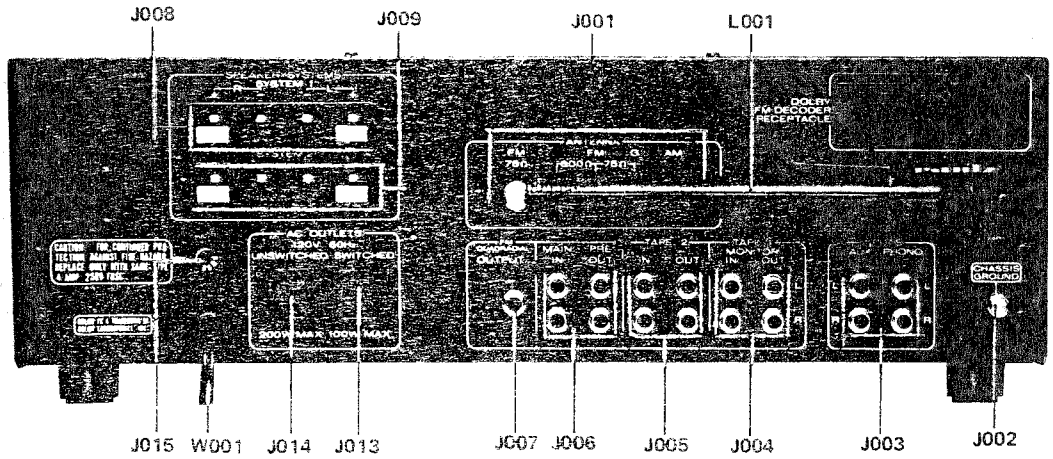
10.1 Front Panel Adjustment and Component Locations



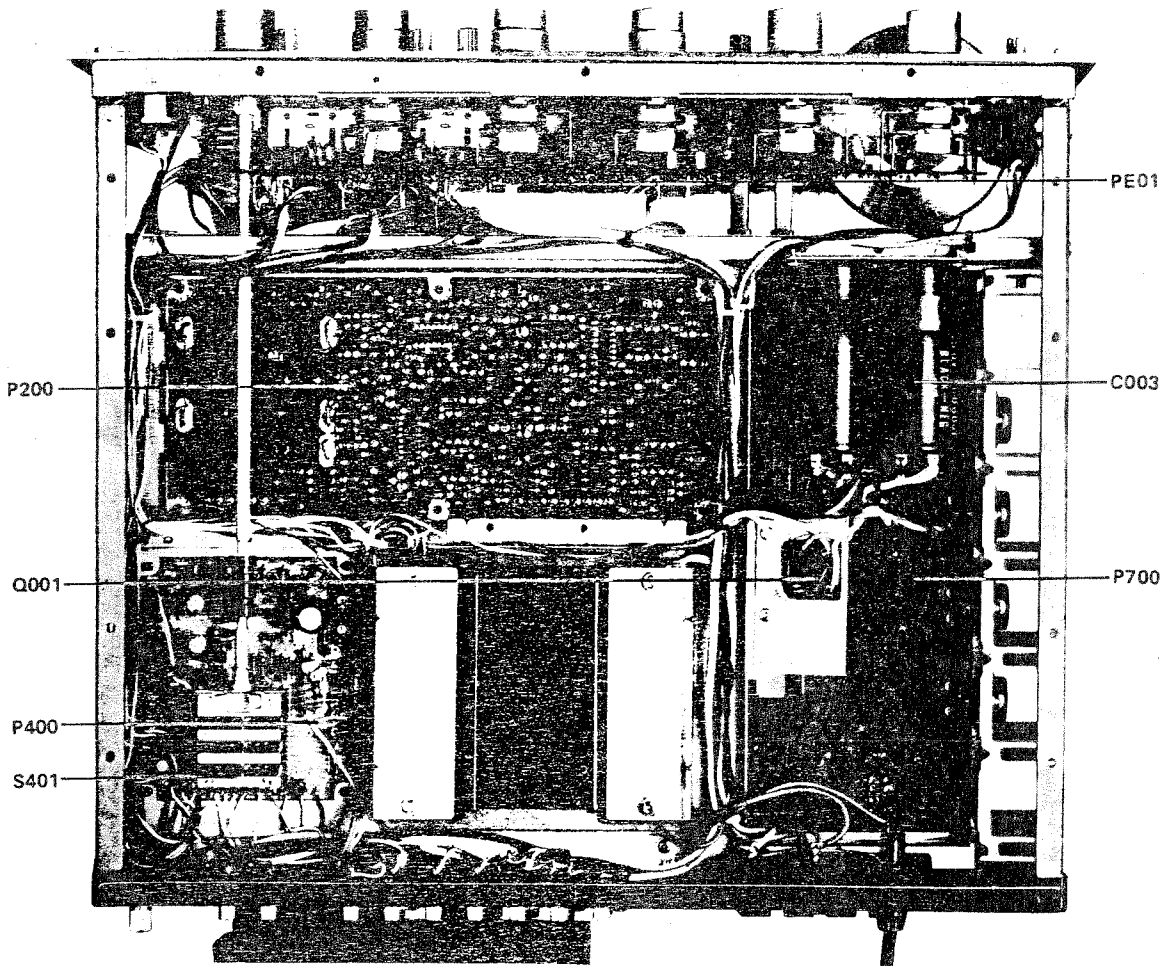
10.2 Main Chassis Component Locations (Top View)



10.3 Rear Panel Adjustment and Component Locations

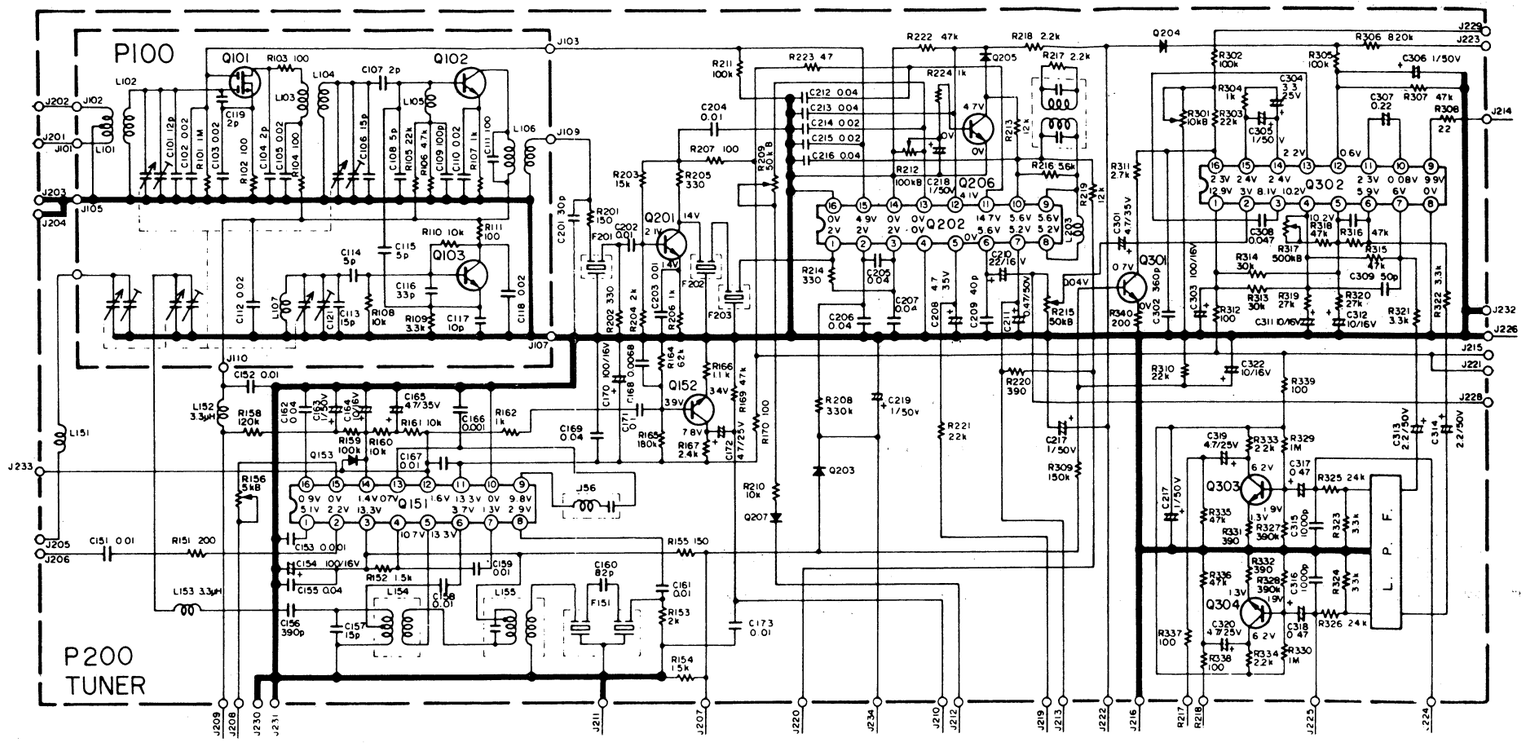


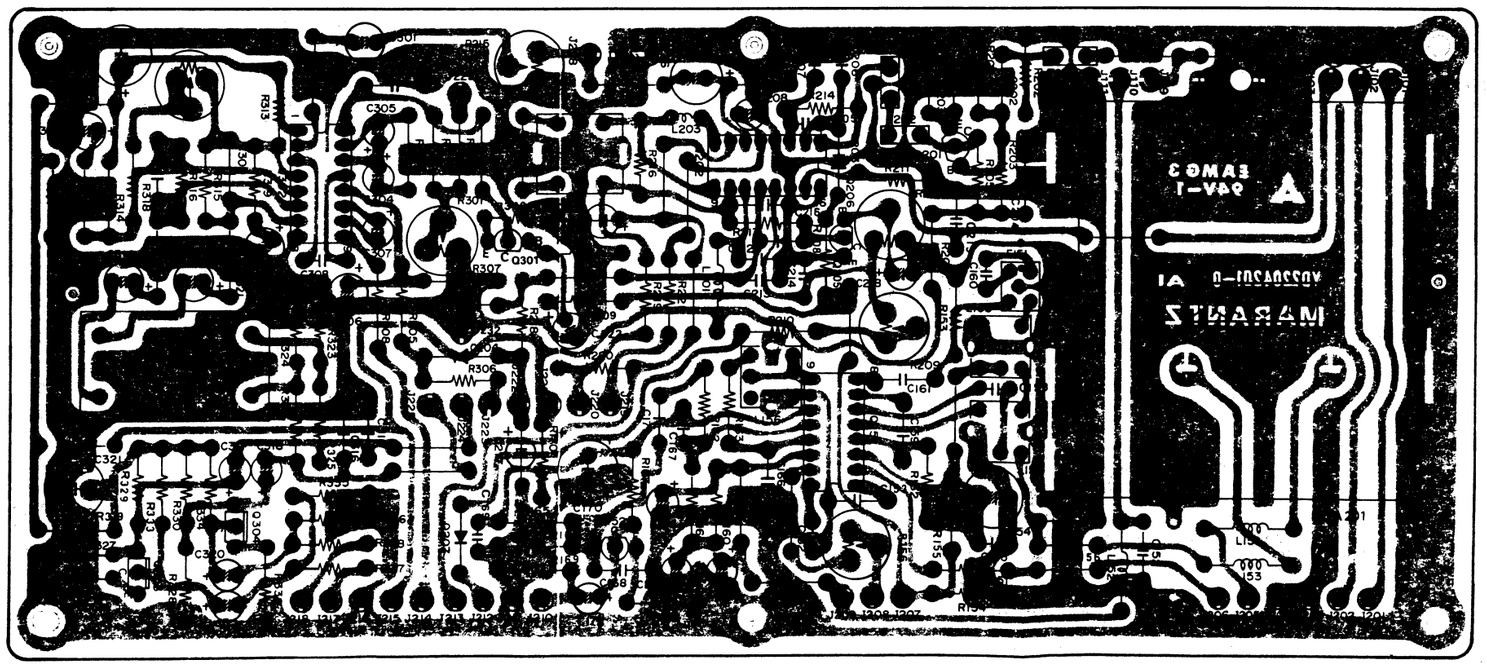
10.4 Main Chassis Component Locations (Bottom View)



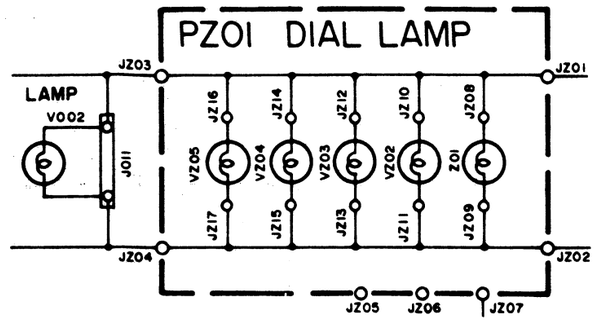
11. DIAGRAM AND COMPONENT LOCATIONS

11.1 FM & AM Tuner Assembly (P200) Schematic Diagram and Component Locations

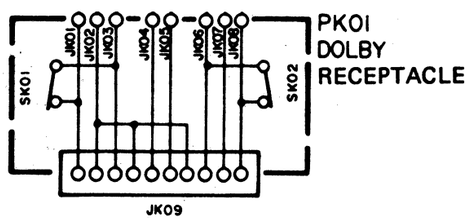


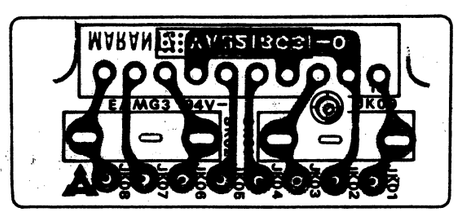


11.2 Dial Lamp Assembly (PZ01) Schematic Diagram and Component Locations

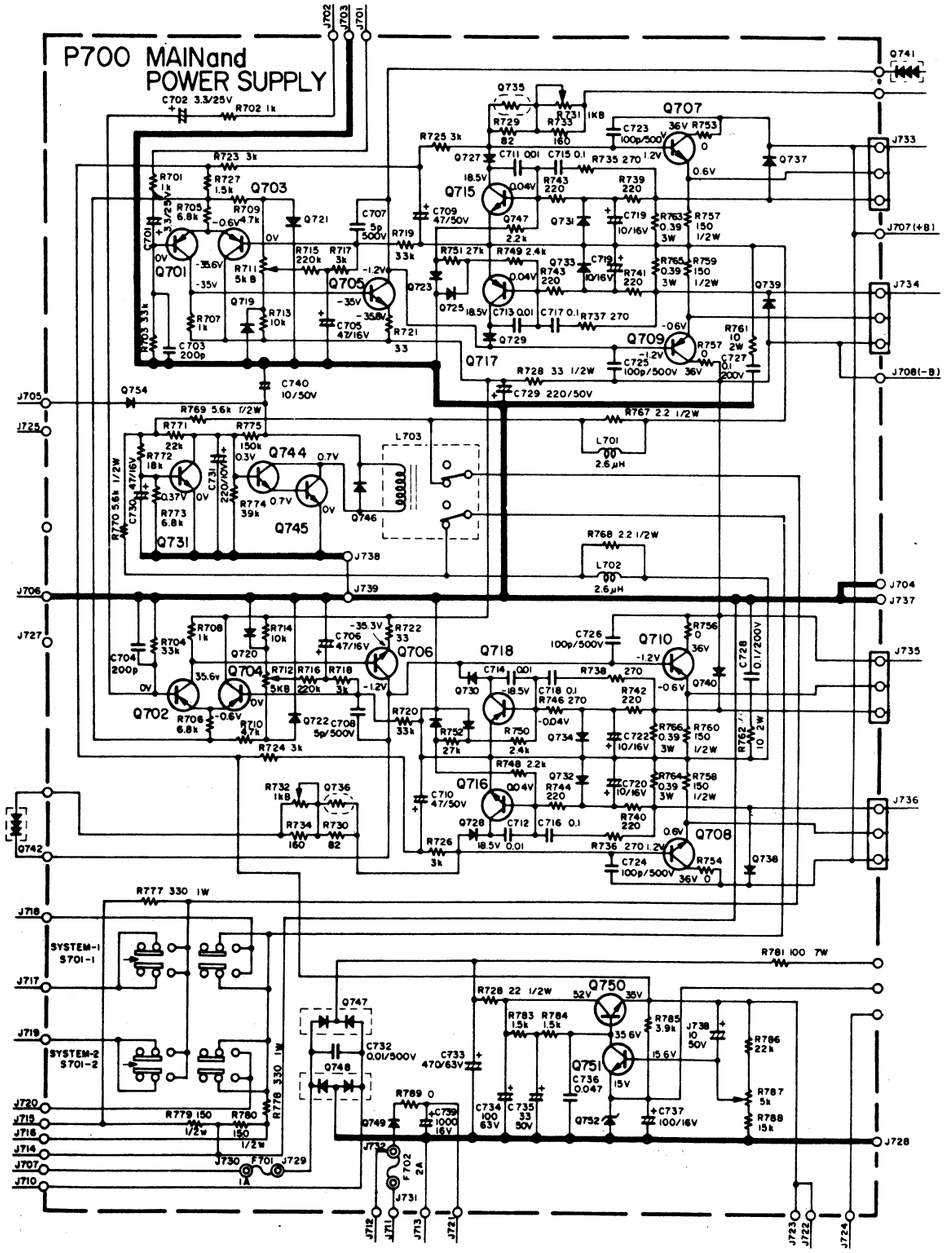


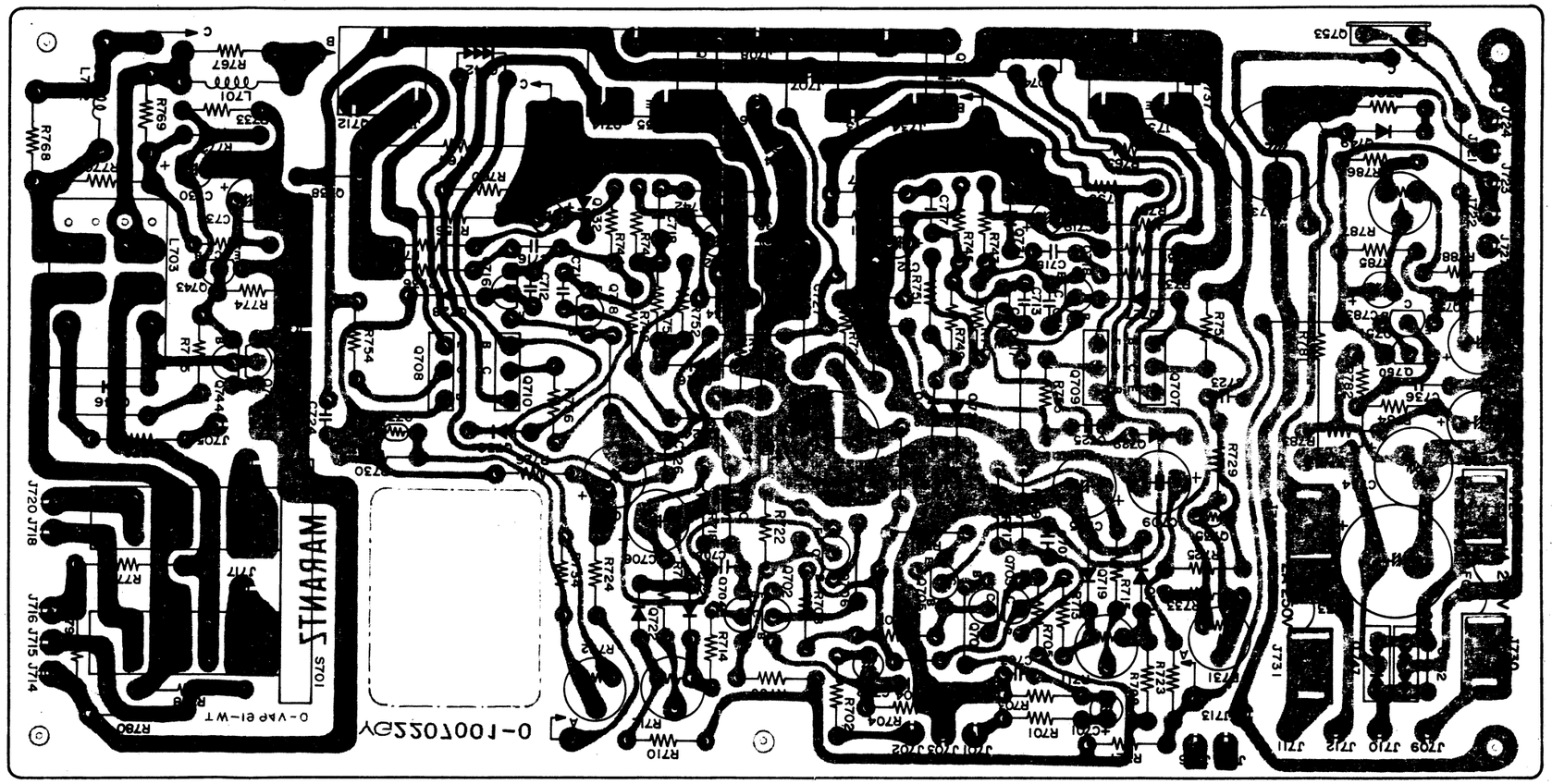
11.3 DLB-1 Socket Assembly (PK01) Schematic Diagram and Component Locations





11.4 Main Amp. & Power Supply Assembly (P700) Schematic Diagram and Component Locations




WARRANTY
STOIS
O-VAE EI-WT
O-F00T0552EV
J720 J718
J716 J715 J714
J709 J710 J712 J711
J730
J731
J701 J703 J702
J707
J713
R767
L701
R769
R768
L703
R774
R780
R710
R724
R722
R714
R704
R702
R701
R723
R719
R729
R728
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R786
R785
R754
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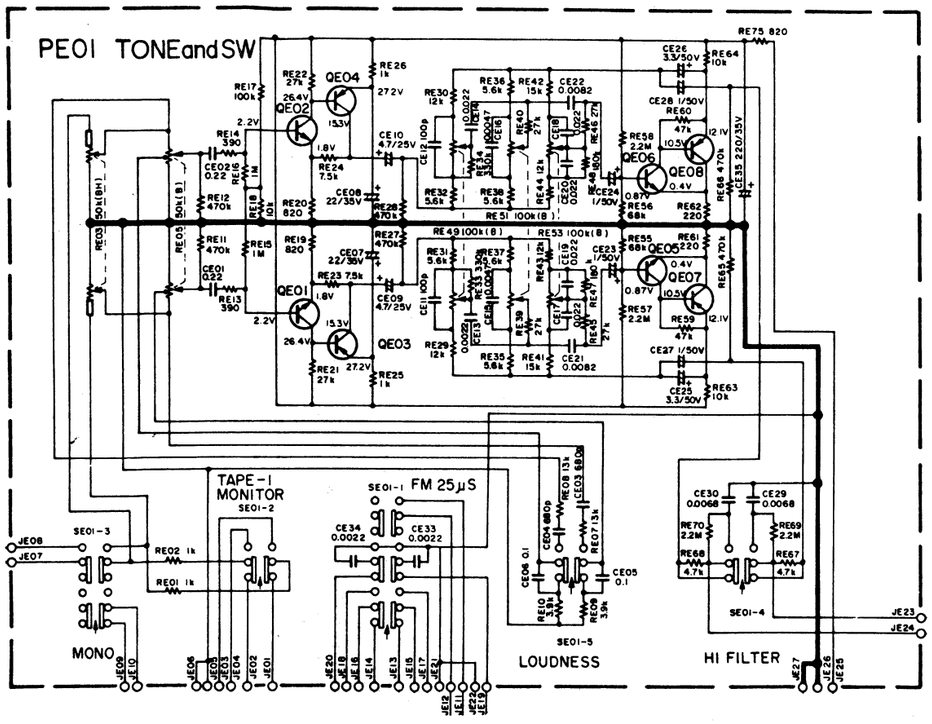
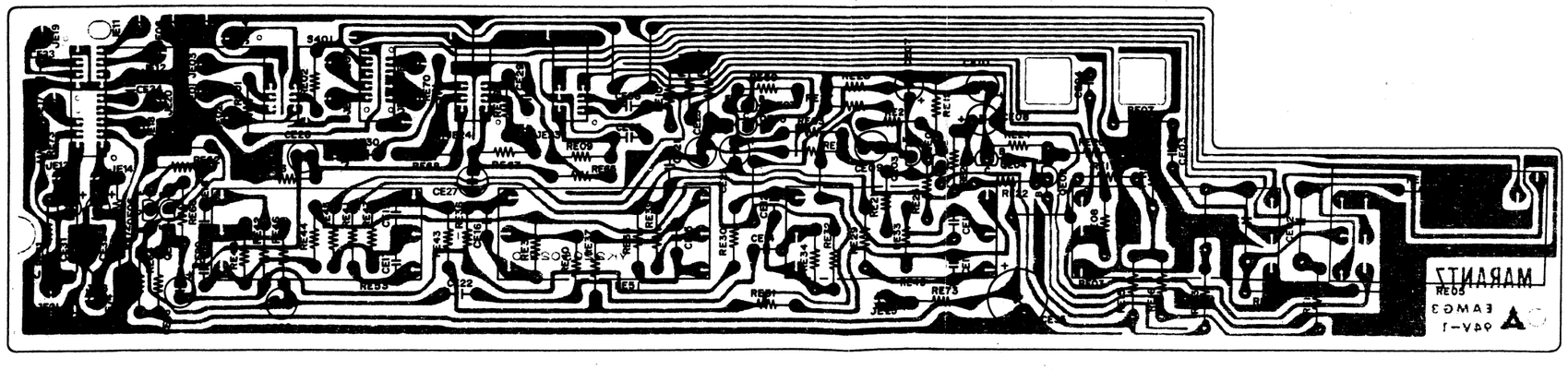
C701

11.5 Tone Amp. Assembly (PE01) Schematic Diagram and Component Locations





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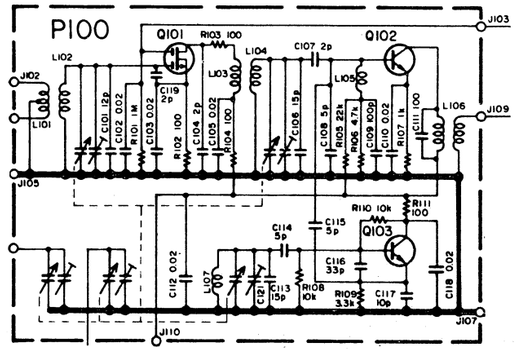
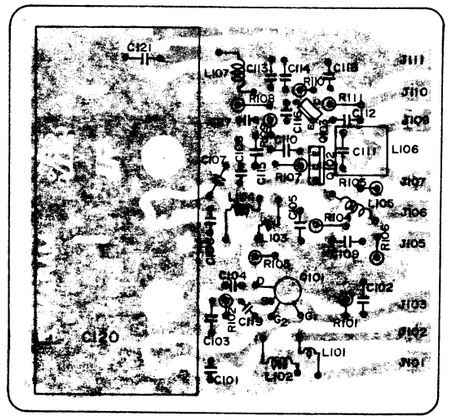
11.6 FM Front End Assembly (P100) Schematic Diagram and Component Locations





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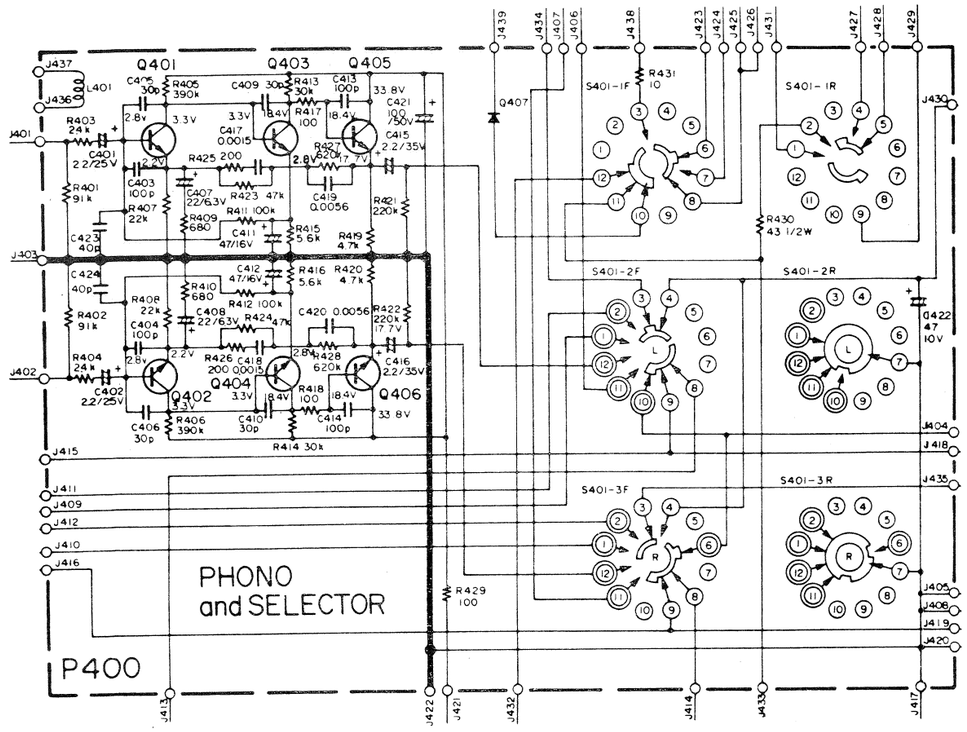
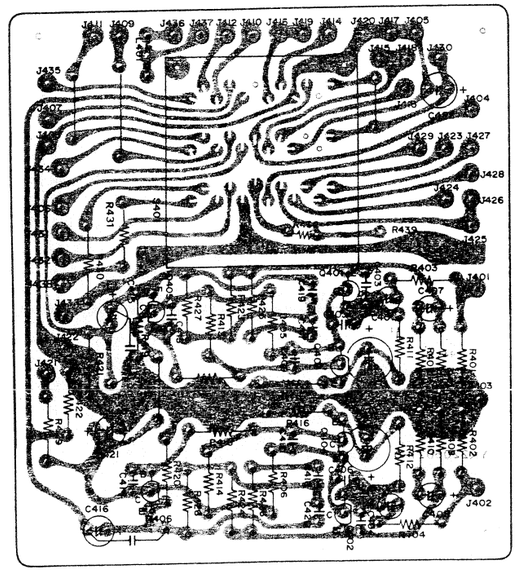
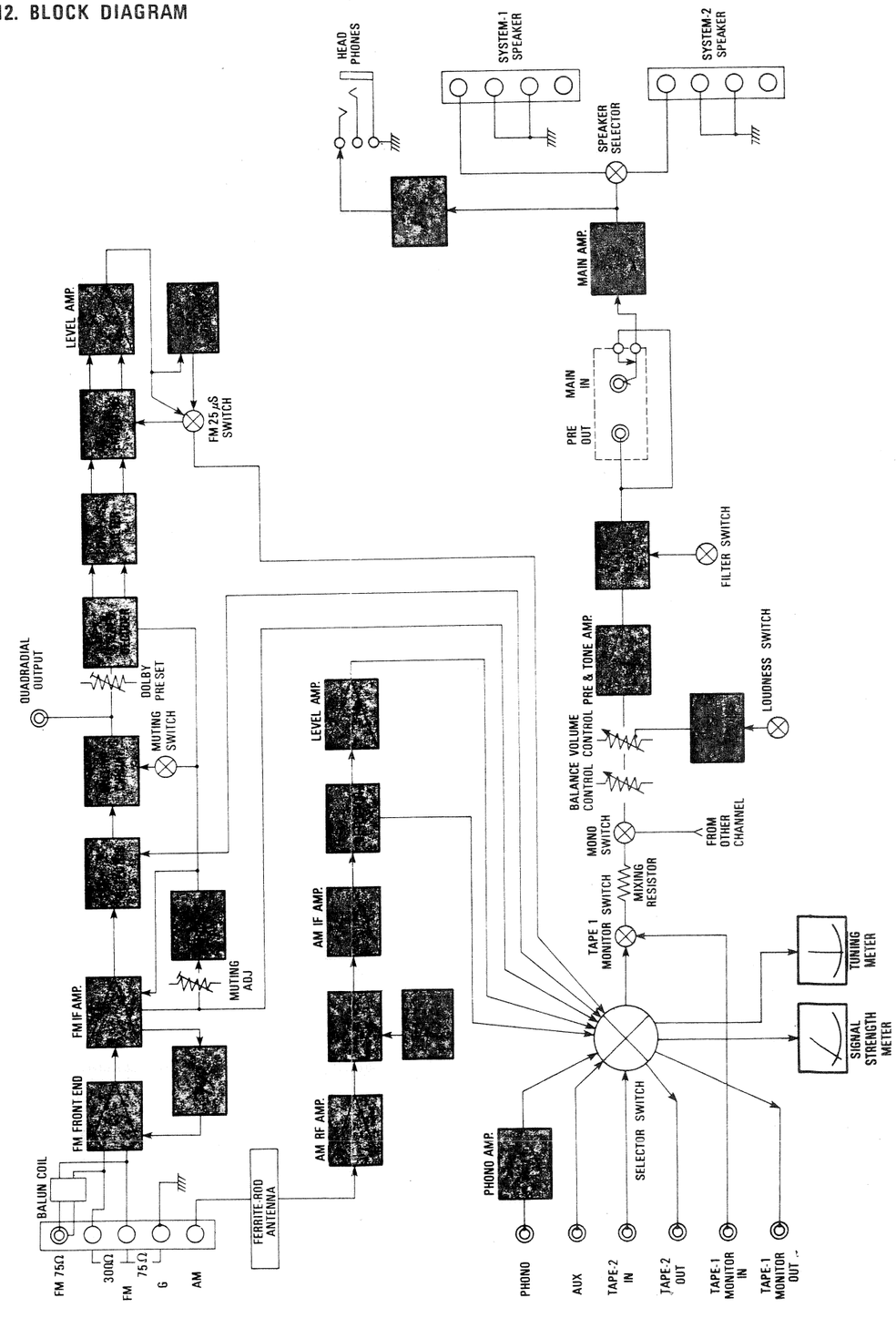
11.7 EQ Amp. Assembly (P400) Schematic Diagram and Component Locations



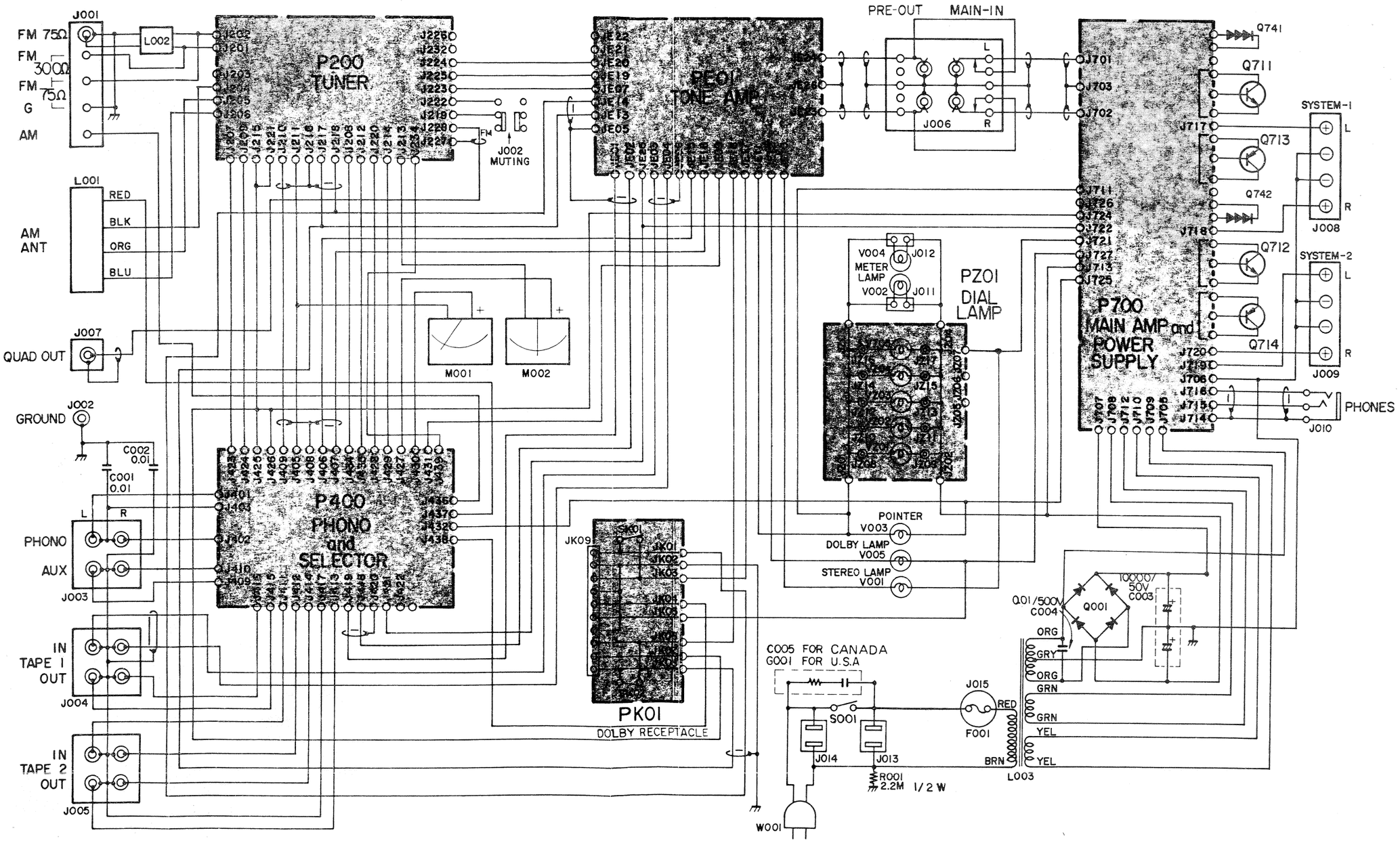


12. BLOCK DIAGRAM

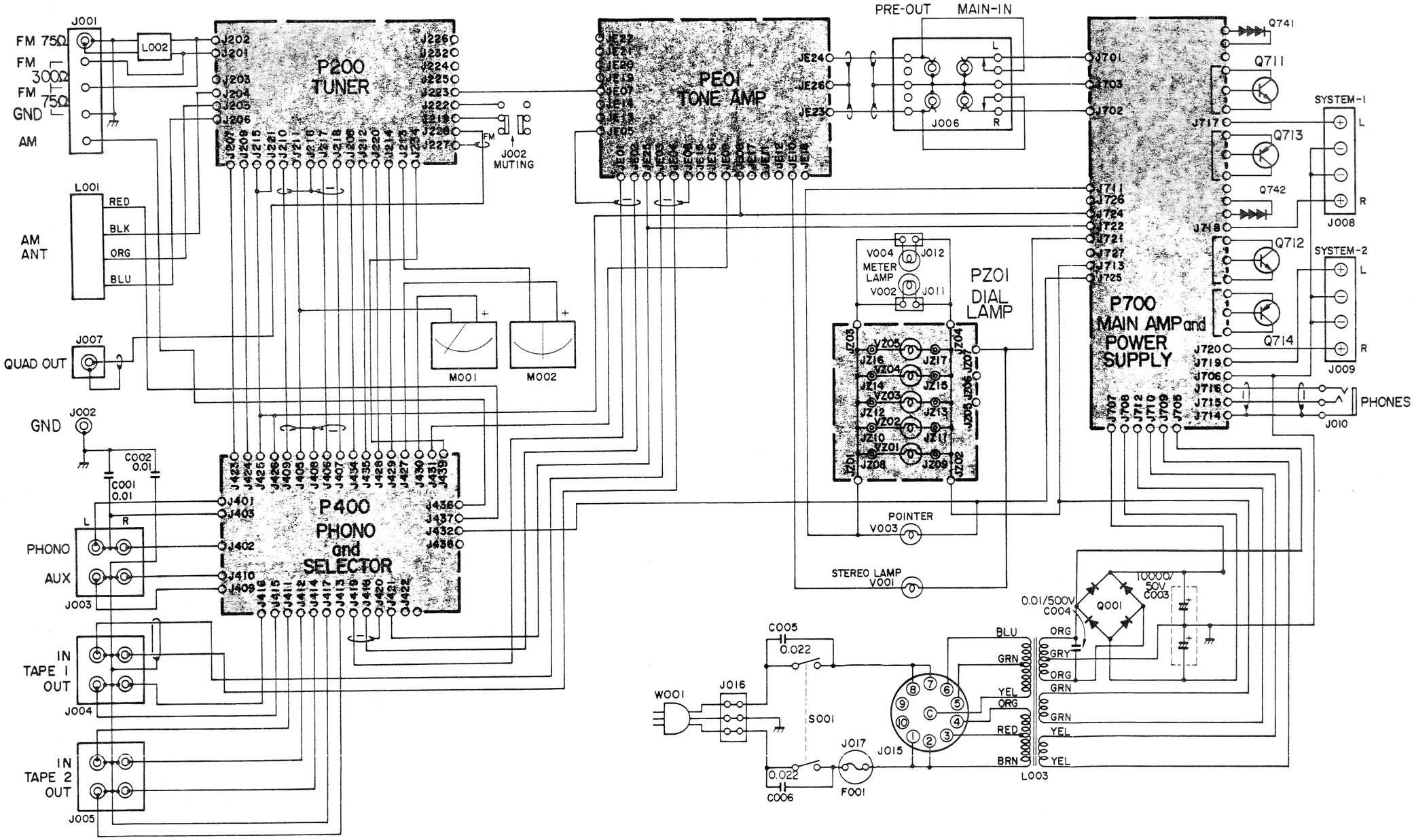


13. CONNECTION DIAGRAMS

13.1 For U.S.A. & Canadian Models

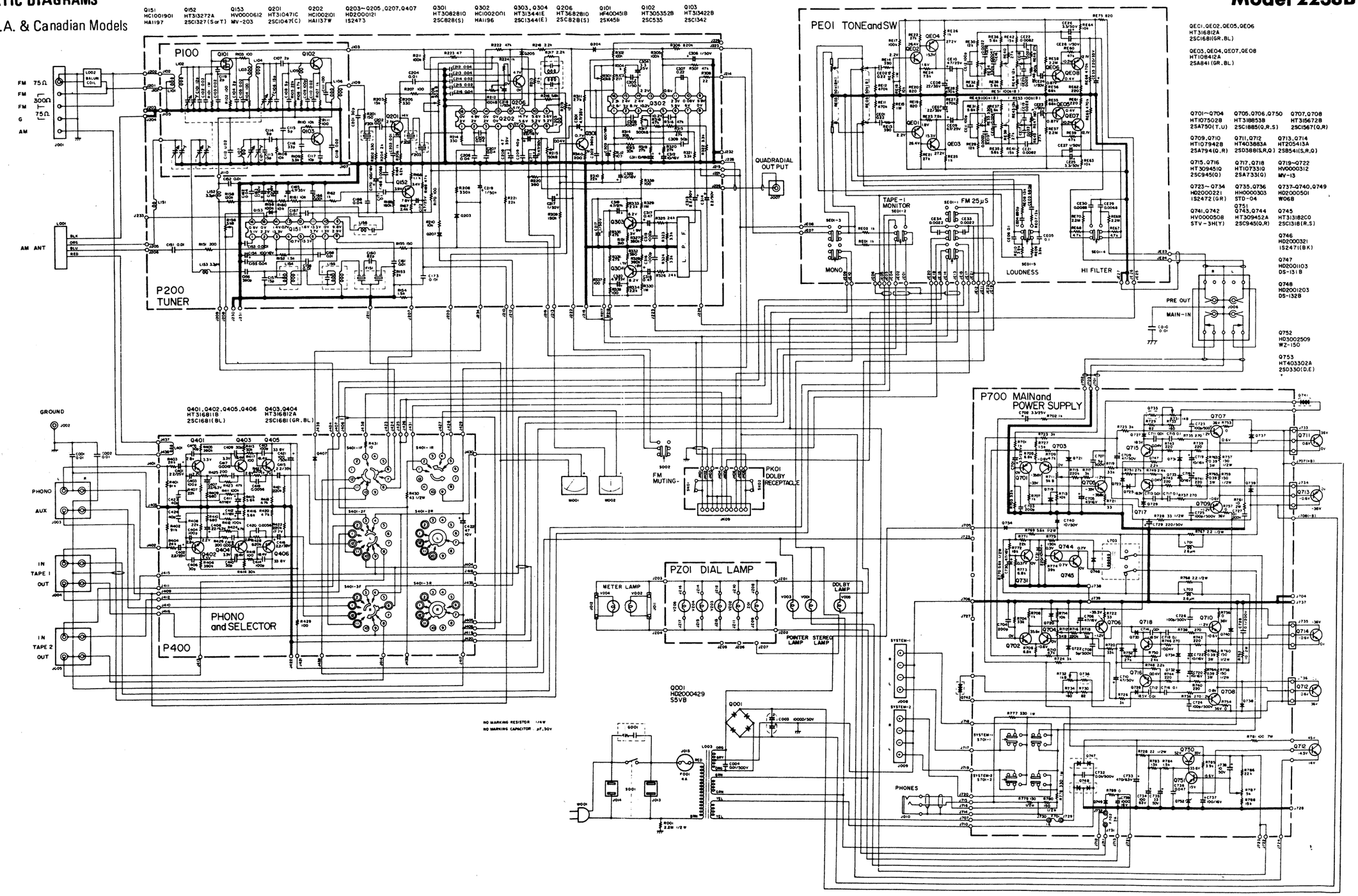


13.2 For European Model

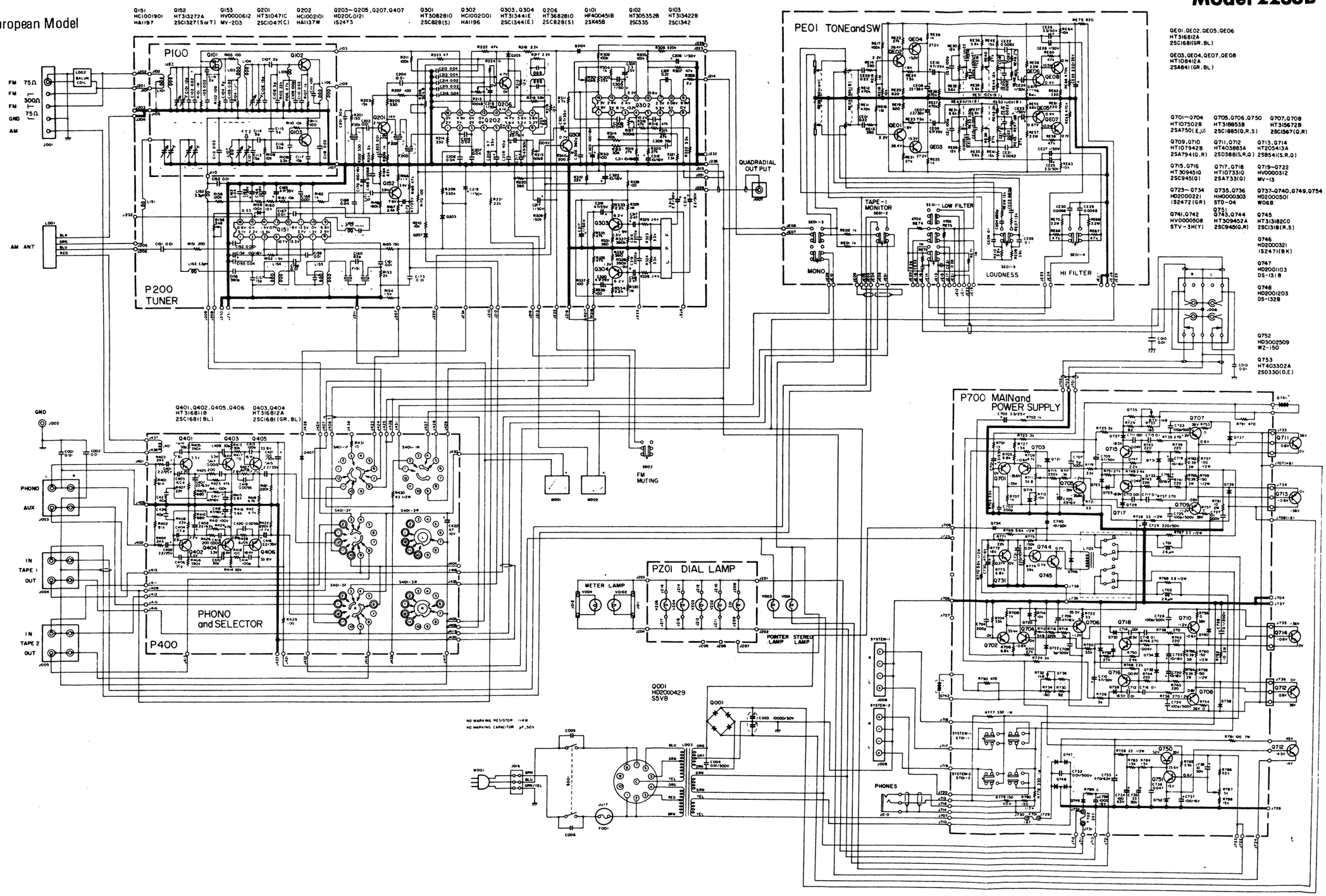


14. SCHEMATIC DIAGRAMS

14.1 For U.S.A. & Canadian Models

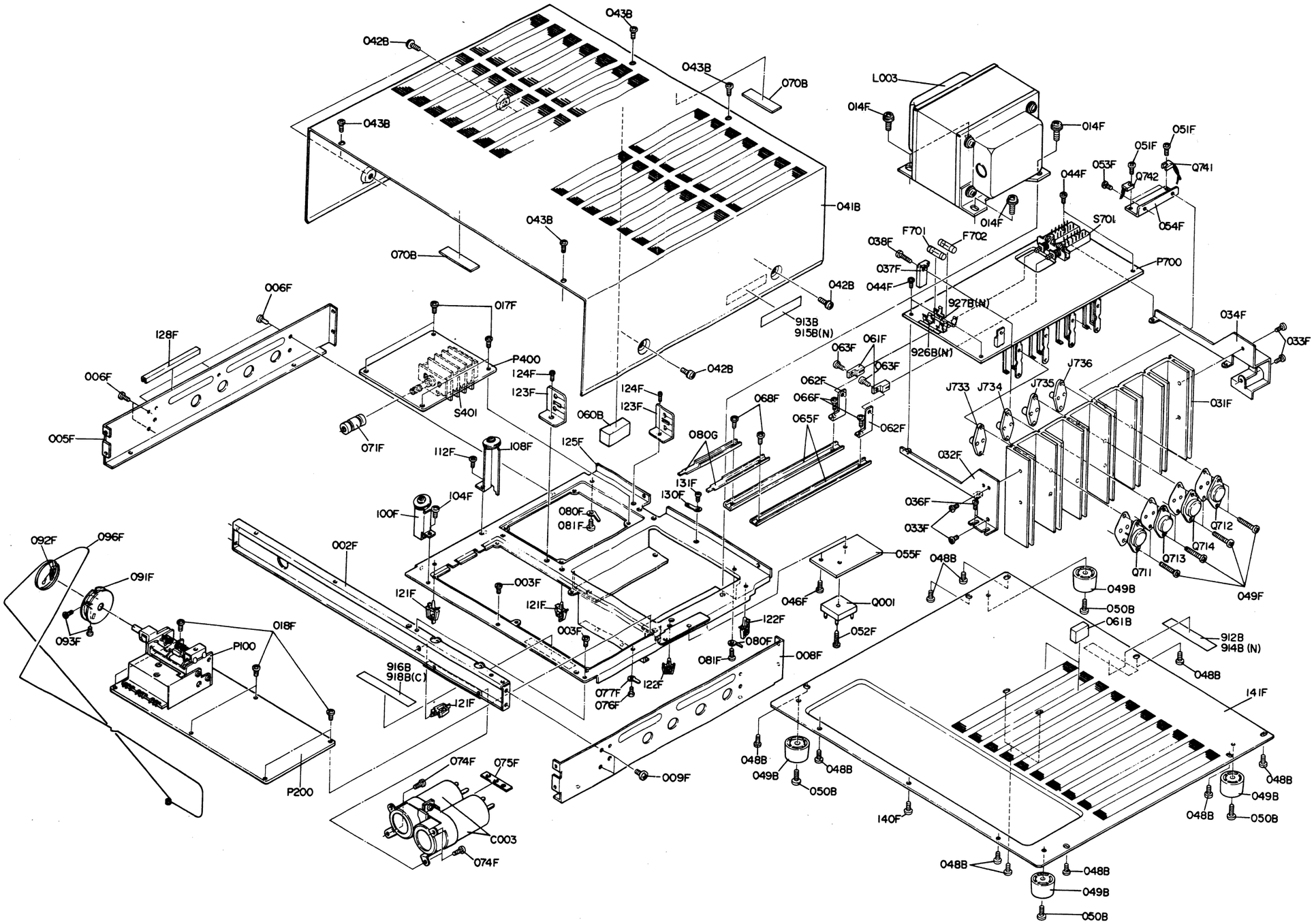


Model 2238B

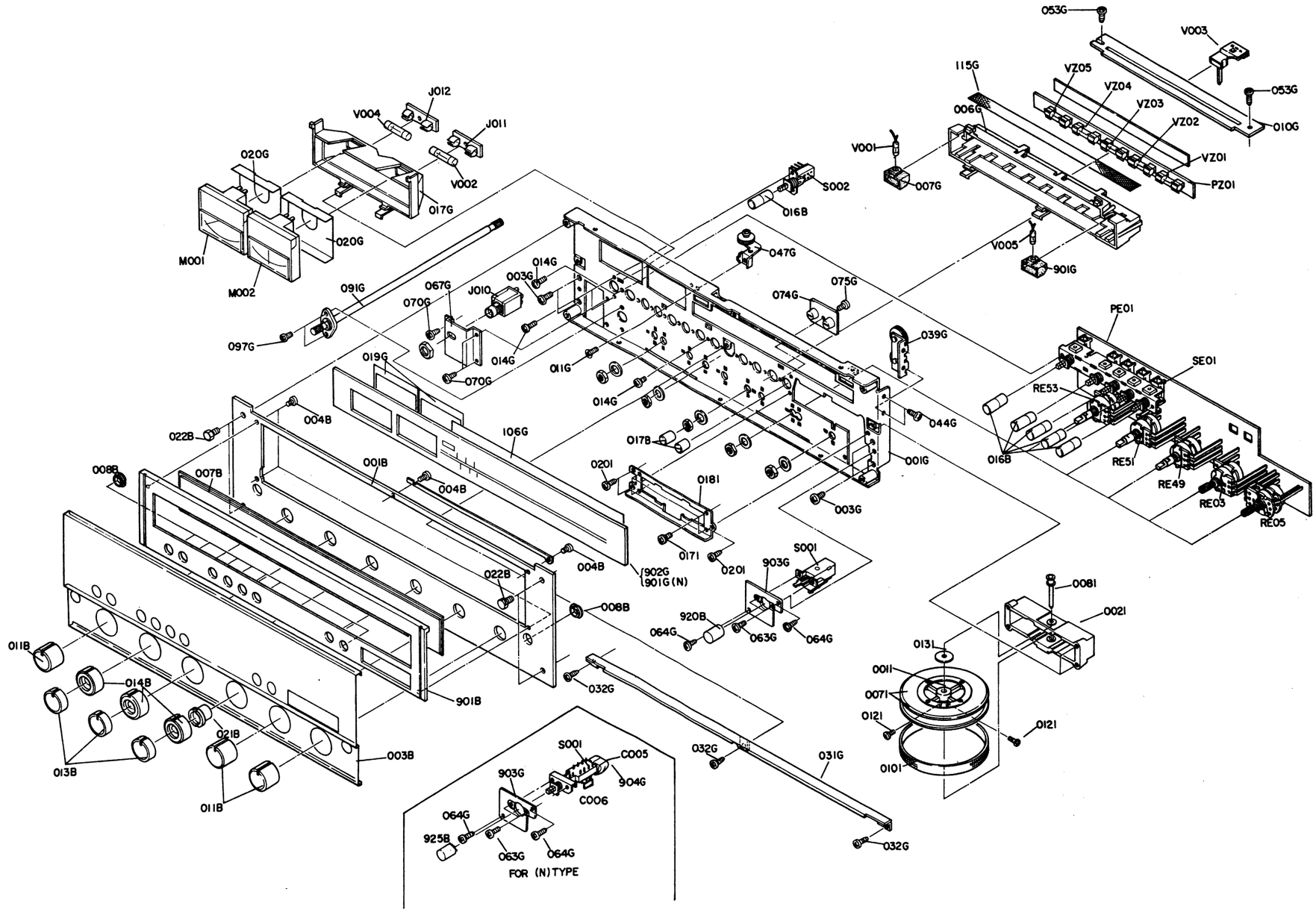

Q151 HC1001901 HAI197
Q152 HT313272A 2SC1327(S or T)
Q153 HV0000612 MV-203
Q201 HT310471C 2SC1047(C)
Q202 HC1002101 HAI137W
Q203~Q205, Q207, Q407 HD20C0121 IS2473
Q301 HT3082810 2SC828(S)
Q302 HC1002001 HAI196
Q303, Q304 HT31341E 2SC1344(E)
Q206 HT3682810 2SC828(S)
Q101 HF400451B 2SK45B
Q102 HT305352B 2SC535
Q103 HT314228 2SC1342
P100
P200 TUNER
P400 PHONO and SELECTOR
PE01 TONE and SW
QE01, QE02, QE05, QE06 HT316812A 2SC1681(GR, BL)
QE03, QE04, QE07, QE08 HT108412A 2SA841(GR, BL)
Q401, Q402, Q405, Q406 HT3168118 2SC1681I(BL)
Q403, Q404 HT316812A 2SC1681(GR, BL)
Q701~Q704 HT107502B 2SA750(E,U)
Q705, Q706, Q750 HT3188538 2SC1885(Q,R,S)
Q707, Q708 HT315672B 2SC1567(Q,R)
Q709, Q710 HT107942B 2SA794(Q,R)
Q711, Q712 HT403883A 2SD388(S,R,Q)
Q713, Q714 HT205413A 2SB541(S,R,Q)
Q715, Q716 HT309451Q 2SC945(Q)
Q717, Q718 HT107331Q 2SA733(Q)
Q719~Q722 HV0000312 MV-13
Q723~Q734 HD2000221 IS2472(GR)
Q735, Q736 HW0000303 STD-04
Q737~Q740, Q749, Q754 HD2000501 W068
Q741, Q742 HV0000508 STV-3H(Y)
Q743, Q744 HT309452A 2SC945(Q,R)
Q745 HT313182C0 2SC1318(R,S)
Q746 HD2000321 IS2471(BK)
Q747 HD2001103 DS-1518
Q748 HD2001203 DS-1328
Q752 HD3002509 WZ-150
Q753 HT403302A 2SD330(D,E)
Q001 HD2000429 S5VB
P700 MAIN and POWER SUPPLY
PZ01 DIAL LAMP
METER LAMP
POINTER STEREO LAMP
QUADRADIAL OUT PUT
FM MUTING
TAPE-1 MONITOR
LOW FILTER
HI FILTER
LOUDNESS
MONO
PHONES
SYSTEM-1
SYSTEM-2
FM 75Ω
FM 300Ω
FM 75Ω
GND
AM
AM ANT
PHONO
AUX
IN TAPE 1 OUT
IN TAPE 2 OUT

15. EXPLODED MECHANICAL DIAGRAMS

15.1 Cabinet



15.2 Chassis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VZ05
VZ04
VZ03
VZ02
VZ01
PZ01
053G
010G
006G
V001
007G
S002
016B
V005
901G
047G
074G
075G
PE01
SE01
RE53
RE51
RE49
RE03
RE05
016B
039G
044G
001G
003G
J012
V004
J011
020G
V002
017G
020G
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M002
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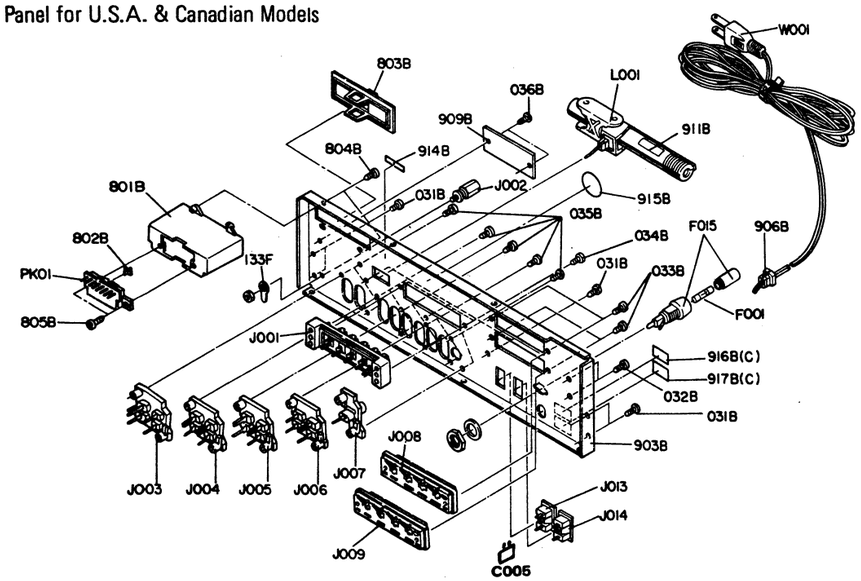
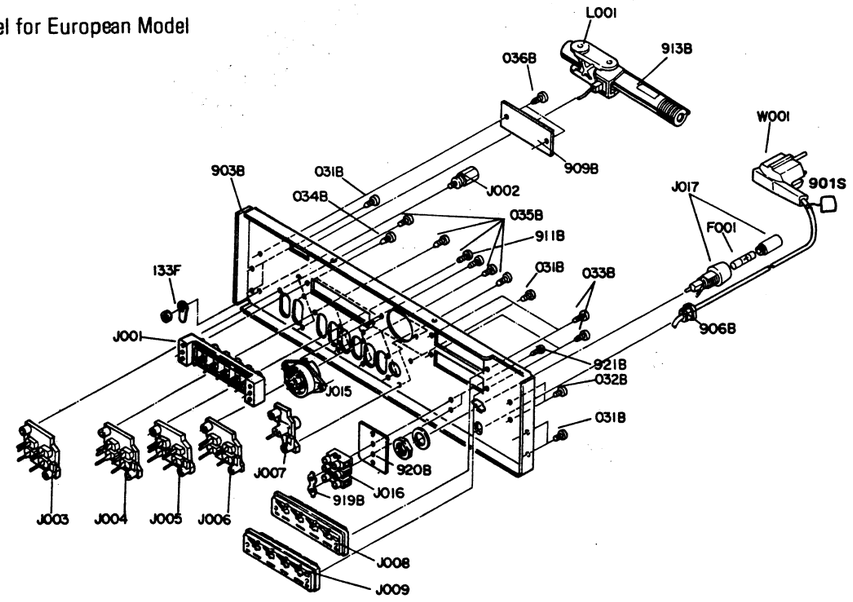
903G
920B
064G
063G
064G
0081
0021
0131
0011
0071
0121
0121
0101
022B
008B
011B
014B
013B
021B
011B
003B
901B
032G
032G
031G
032G
S001
C005
903G
904G
C006
064G
925B
063G
064G
FOR (N)TYPE

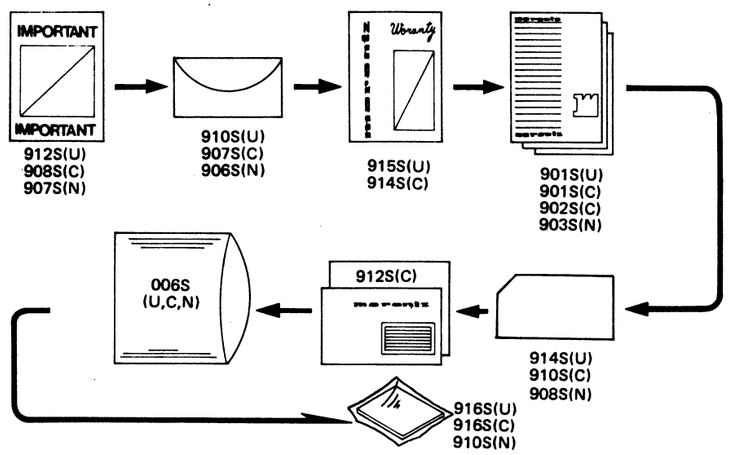
15.3 Rear Panel for U.S.A. & Canadian Models

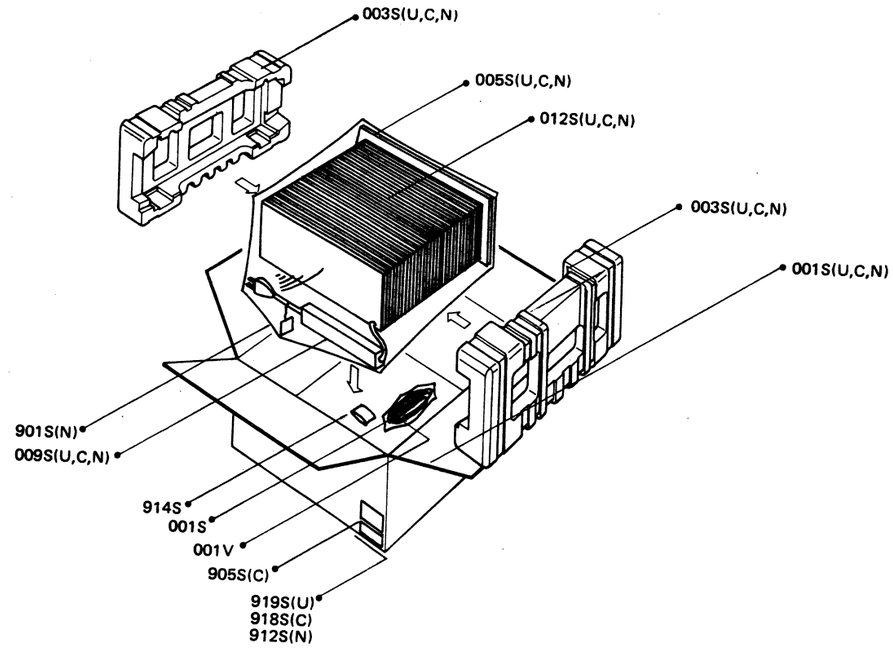


15.4 Rear Panel for European Model



16. PACKING MATERIAL EXPLODED VIEW





- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

17. PARTS LIST

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
A	1	1		2207063400	Front Panel Assembly
A1			1	2207063410	Front Panel Assembly
001B	1	1	1	2205063012	Escutcheon
003B	1	1	1	2205053012	Cover
004B	5	5	5	51100305A9	B.H.M. Screw, B3 x 5
007B	1	1	1	2211158110	Window
008B	9	9	9	2978259010	Bushing
901B	1	1		2207063012	Escutcheon
901B			1	2207063110	Escutcheon
B	1	1	1	2205159400	Drum Assembly
091F	1	1	1	2204159010	Drum
092F	1	1	1	2205115020	Spring
093F	2	2	2	51064019A9	P.H.M. Screw
C	1	1	1	2219273410	Flywheel Assembly
001I	1	1	1	2219273010	Flywheel
007I	2	2	2	2219063030	Escutcheon
010I	1	1	1	2215353010	Ring
012I	2	2	2	51820206B0	P.H.M. Screw, P2 x 6
PE08	2	2	2	2933118020	Spacer
PE11	1	1	1	75060751P0	Jumper
PE12	1	1	1	75061001P0	Jumper
PE13	6	6	6	75061251P0	Jumper
P208	12	12	12	2933118020	Spacer
P211	12	12	12	75061251P0	Jumper
P408	6	6	4	2933118020	Spacer
P411	1	1	1	75061001P0	Jumper
P412	2	2	2	75061251P0	Jumper
P413	1	1	1	75061501P0	Jumper
P707	32	32	32	3444118050	Spacer
P708	32	32	32	2933118020	Spacer
P711	10	10	10	75061251P0	Jumper
P712	3	3	3	75060751P0	Jumper
R308	1	1	1	75061251P0	Jumper
001G	1	1	1	2211160043	Bracket
001H	1	1	1	2991103500	Pointer
001S	1	1	1	2207801010	Packing Case
001V	1	1	1	ZA02000070	Ext. Antenna, FM
002F	1	1	1	2205126010	Stay
002I	1	1	1	2213104500	Retainer
003B	1	1	1	2205053012	Cover
003F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
003G	4	4	4	51280406B0	B.H. Tapped Screw, B4 x 6
003S	2	2	2	2204809012	Cushion
005F	1	1	1	2205126023	Stay
005S	1	1	1	9014838380	Polyethylene Bag
006F	5	5	5	51280306B0	B.H. Tapped Screw, B3 x 6
006G	1	1	1	2211274102	Reflector

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
006S	1	1	1	9013025010	Polyethylene Bag
007G	1	1	1	2211274302	Reflector
007S	1	1	1	9013025010	Polyethylene Bag
008F	1	1	1	2205126033	Stay
008I	1	1	1	2219112010	Shaft
009F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
009S	1	1	1	2864804010	Sleeve
010G	1	1	1	2205051013	Guide
011B	3	3	3	2221154230	Knob
011G	2	2	2	51042608A0	F.H.M. Screw, F2.6 x 8
012S	1	1	1	2918107130	Sheet
013B	3	3	3	2205154010	Knob
013I	1	1	1	59031405G9	Washer
014B	3	3	3	2205154020	Knob
014F	4	4	4	51490514A9	L. Washer Screw
014G	4	4	4	51100306A9	B.H.M. Screw, B3 x 6
016B	6	6	6	2205154030	Knob
017B	2	2	2	2963154022	Knob
017F	4	4	4	51280308U0	B.H. Tapped Screw, B3 x 8
017G	1	1	1	2211274203	Reflector
017I	4	4	4	51470306A9	L. Washer Screw
018F	6	6	6	51280308U0	B.H. Tapped Screw, B3 x 8
018I	1	1	1	2205160123	Bracket
019G	2	2	2	2213053022	Cover
020G	2	2	2	2991107020	Sheet
020I	3	3	3	51280306B0	B.H. Tapped Screw, B3 x 6
021B	1	1	1	2213055010	Collar
022B	4	4	4	52017069J0	H. Head Bolt
031B	6	6	6	51280308U0	B.H. Tapped Screw, B3 x 8
031F	1	1	1	2207267012	Heatsink
031G	1	1	1	2205269013	Protector
032B	2	2	2	51280308U0	B.H. Tapped Screw, B3 x 8
032F	1	1	1	2207104012	Retainer
032G	3	3	3	51280306B0	B.H. Tapped Screw, B3 x 6
033B	4	4	4	51280308U0	B.H. Tapped Screw, B3 x 8
033F	4	4	4	51280308B0	B.H. Tapped Screw, B3 x 8
034B	2	2	2	51280308U0	B.H. Tapped Screw, B3 x 8
034F	1	1	1	2207104022	Retainer
035B	10	10	10	51280308U0	B.H. Tapped Screw, B3 x 8
036B	2	2	2	51760306B0	OS Tapped Screw, O3 x 6
036F	2	2	2	51280308B0	B.H. Tapped Screw, B3 x 8
037F	1	1	1	2207267020	Heatsink
038F	1	1	1	51280310B0	B.H. Tapped Screw, B3 x 10
039G	1	1	1	2205262512	Pulley
041B	1	1	1	2205257010	Lid
042B	4	4	4	51480406S9	F. Washer Screw
043B	4	4	4	51280306U0	B.H. Tapped Screw, B3 x 6
044F	4	4	4	51280308U0	B.H. Tapped Screw, B3 x 8
044G	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
046F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
047B	1	1	1	2205257030	Lid
047G	1	1	1	2205262502	Pulley
048B	11	11	11	51280410U0	B.H. Tapped Screw, B4 x 10
049B	4	4	4	2932057010	Leg
049F	8	8	8	51100312A9	B.H.M. Screw, B3 x 12
050B	4	4	4	51570410S0	P. Tapped Screw, P4 x 10
051F	2	2	2	51280310U0	B.H. Tapped Screw, B3 x 10

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
052F	1	1	1	51280316U0	B.H. Tapped Screw, B3 x 16
053F	2	2	2	5128030880	B.H. Tapped Screw, B3 x 8
053G	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6
054F	1	1	1	2207267040	Heatsink
055F	1	1	1	2207267030	Heatsink
061F	2	2	2	2891271013	Holder
062F	2	2	2	2205002012	Arm
063F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
063G	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
064G	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
065F	2	2	2	2207160010	Bracket
066F	2	2	2	51300306B0	P.H. Tapped Screw, P3 x 6
067G	1	1	1	2205160010	Bracket
068F	2	2	2	51300306B0	P.H. Tapped Screw, P3 x 6
070G	3	3	3	51280306B0	B.H. Tapped Screw, B3 x 6
071F	1	1	1	2963125010	Joint
074F	4	4	4	51280306B0	B.H. Tapped Screw, B3 x 6
074G	1	1	1	2213106012	Sustainer
075F	1	1	1	2207123010	Contactor
075G	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6
076F	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6
077F	1	1	1	62030049W0	Lug
078G	2	2	2	2205115010	Spring
080F	2	2	2	62030049W0	Lug
080G	2	2	2	2205160032	Bracket
081F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
091G	1	1	1	2205112500	Shaft
096F	2	2	2	72071605A0	String
097G	2	2	2	51280308B0	B.H. Tapped Screw, B3 x 8
100F	1	1	1	2205262520	Pulley
104F	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6
106G	1	1	1	2213107010	Sheet
108F	1	1	1	2205262530	Pulley
112F	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6
121F	5	5	5	2886005020	Clamper
122F	2	2	2	2886005050	Clamper
123F	2	2	2	2205120010	Insulator
124F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
125F	1	1	1	2207105500	Chassis
130F	1	1	1	62030049W0	Lug
131F	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6
133F	1	1	1	62040029W0	Lug
134F	1	1	1	62030049W0	Lug
135F	1	1	1	2991109010	Shield
136F	1	1	1	2991053110	Cover
140F	1	1	1	51280410U0	B.H. Tapped Screw, B4 x 10
801B	1	1		2218271050	Holder
802B	1	1		2218258010	Hook
803B	1	1		2218257030	Lid
804B	2	2		51280308U0	B.H. Tapped Screw, B3 x 8
805B	2	2		51280308U0	B.H. Tapped Screw, B3 x 8
901G			1	2205302010	Dial
901G	1	1		2211274302	Reflector
901S	1			2207851010	Instructions
901S		1		2207851310	Instructions
901S			1	9560000040	Hang Tag
902G	1	1		2207302010	Dial

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
902S		1		2886851100	Instructions
903B	1	1		2207160214	Bracket
903B			1	2207160222	Bracket
903G	1	1		2205160020	Bracket
903G			1	2205160150	Bracket
903S			1	2207851310	Instructions
904G			2	2970120030	Insulator
905S		2		9510901020	Label
906B	1	1		1455259030	Bushing
906B			1	1455259040	Bushing
906S			1	2818813010	Envelope
907S			1	2818851120	Instructions
907S		1		2918813012	Envelope
908S		1		2818851120	Instructions
908S			1	9630000180	Guarantee Card
909B	1			2207265010	Indicator
909B		1		2207265020	Indicator
909B			1	2207265030	Indicator
910S	1			2577813010	Envelope
910S			1	2818851140	Instructions
910S		1		9630000180	Guarantee Card
911B	1			2506265060	Indicator
911B		1		2911861170	Label
911B			2	51100308S9	B.H.M. Screw, B3 x 8
912B	1			2578861010	Label
912B		1		2911861112	Label
912S	1			2577851020	Instructions
912S			3	9523015110	Serial No. Card
912S		1		9650000050	S. Station Card
913B			1	2506265060	Indicator
913B		1		2911861142	Label
913B	1			2932861010	Label
914B			1	2578861010	Label
914B		1		9510911010	Label
914B	1			9510911020	Label
914S	1			2577854012	Guarantee Card
914S			1	2731821010	Silicagel
914S		1		2818854042	Guarantee Card
915B			1	2932861010	Label
915B	1			9511101020	Label
915S	1			2818854023	Guarantee Card
916B	2		2	2205861010	Label
916B		1		2911861192	Label
916S	1			2818851040	Instructions
916S		1		2818851140	Instructions
917B		1		2911861270	Label
918B		3		2205861110	Label
918S		3		9523015120	Serial No. Card
919B			1	2970005010	Clamper
919S	3			9522815010	Serial No. Card
920B	1	1		2963154022	Knob
920B			1	4113120010	Insulator
921B			2	51100314S9	B.H.M. Screw, B3 x 14
925B			1	2218154020	Knob
926B			1	9512601030	Label
927B			1	9512601060	Label

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
CE01	1	1	1	DF17224050	Film Cap., 0.22μF ±20% 50V
CE02	1	1	1	DF17224050	Film Cap., 0.22μF ±20% 50V
CE03	1	1	1	DK16681010	Ceramic Cap., 680pF ±10% 50V
CE04	1	1	1	DK16681010	Ceramic Cap., 680pF ±10% 50V
CE05	1	1	1	DF16104010	Film Cap., 0.1μF ±10% 50V
CE06	1	1	1	DF16104010	Film Cap., 0.1μF ±10% 50V
CE07	1	1	1	EA10603590	Electrolytic Cap., 10μF $^{+100}_{-10}$% 35V
CE08	1	1	1	EA10603590	Electrolytic Cap., 10μF $^{+100}_{-10}$% 35V
CE09	1	1	1	EE47502540	Electrolytic Cap., 4.7μF ±20% 25V
CE10	1	1	1	EE47502540	Electrolytic Cap., 4.7μF ±20% 25V
CE11	1	1	1	DD16101010	Ceramic Cap., 100pF ±10% 50V
CE12	1	1	1	DD16101010	Ceramic Cap., 100pF ±10% 50V
CE13	1	1	1	DF16222050	Film Cap., 0.0022μF ±10% 50V
CE14	1	1	1	DF16222050	Film Cap., 0.0022μF ±10% 50V
CE15	1	1	1	DF16472050	Film Cap., 0.0047μF ±10% 50V
CE16	1	1	1	DF16472050	Film Cap., 0.0047μF ±10% 50V
CE17	1	1	1	DF16223050	Film Cap., 0.022μF ±10% 50V
CE18	1	1	1	DF16223050	Film Cap., 0.022μF ±10% 50V
CE19	1	1	1	DF16223050	Film Cap., 0.022μF ±10% 50V
CE20	1	1	1	DF16223050	Film Cap., 0.022μF ±10% 50V
CE21	1	1	1	DF16822050	Film Cap., 0.0082μF ±10% 50V
CE22	1	1	1	DF16822050	Film Cap., 0.0082μF ±10% 50V
CE23	1	1	1	EE10505010	Electrolytic Cap., 1μF ±20% 50V
CE24	1	1	1	EE10505010	Electrolytic Cap., 1μF ±20% 50V
CE25	1	1	1	EE33505010	Electrolytic Cap., 3.3μF ±20% 50V
CE26	1	1	1	EE33505010	Electrolytic Cap., 3.3μF ±20% 50V
CE27	1	1		EQ10505010	Electrolytic Cap., 1μF ±30% 50V
CE27			1	EQ10603510	Electrolytic Cap., 10μF ±30% 35V
CE28	1	1		EQ10505010	Electrolytic Cap., 1μF ±30% 50V
CE28			1	EQ10603510	Electrolytic Cap., 10μF ±30% 35V
CE29	1	1	1	DF16682050	Film Cap., 0.0068μF ±10% 50V
CE30	1	1	1	DF16682050	Film Cap., 0.0068μF ±10% 50V
CE31			1	EQ22405010	Electrolytic Cap., 0.22μF ±30% 50V
CE32			1	EQ22405010	Electrolytic Cap., 0.22μF ±30% 50V
CE33	1	1		DF15222050	Film Cap., 0.0022μF ±5% 50V
CE34	1	1		DF15222050	Film Cap., 0.0022μF ±5% 50V
CE35	1	1	1	EA22703590	Electrolytic Cap., 220μF $^{+50}_{-10}$% 35V
JE01 ~ JE27	27	27	27	YP10001130	Plug
JE28			1	YP10001130	Plug, Pin
JE29	1	1	1	YP10001130	Plug, Pin
					PE01 TONE BOARD
PE01	1	1	1	YK22050220	P.W. Board
	1	1		ZZ22050220	P.W. Board Assembly
			1	ZZ22058220	P.W. Board Assembly
QE01	1	1	1	HT316812A0	Transistor, 2SC1681 (GR, BL)
QE02	1	1	1	HT316812A0	Transistor, 2SC1681 (GR, BL)
QE03	1	1	1	HT108412A0	Transistor, 2SA 841 (GR, BL)
QE04	1	1	1	HT108412A0	Transistor, 2SA 841 (GR, BL)
QE05	1	1	1	HT316812A0	Transistor, 2SC1681 (GR, BL)
QE06	1	1	1	HT316812A0	Transistor, 2SC1681 (GR, BL)
QE07	1	1	1	HT108412A0	Transistor, 2SA 841 (GR, BL)
QE08	1	1	1	HT108412A0	Transistor, 2SA 841 (GR, BL)
RE01	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE02	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
RE03	1	1	1	RM05030690	Variable Resistor, 50kΩ (BH) Balance
RE05	1	1	1	RM05030700	Variable Resistor, 50kΩ (B) Volume
RE07	1	1	1	RT05133140	Resistor, 13kΩ ±5% ¼W
RE08	1	1	1	RT05133140	Resistor, 13kΩ ±5% ¼W
RE09	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% ¼W
RE10	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% ¼W
RE11	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE12	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE13	1	1	1	RT05391140	Resistor, 390Ω ±5% ¼W
RE14	1	1	1	RT05391140	Resistor, 390Ω ±5% ¼W
RE15	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
RE16	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
RE17	1	1	1	RT05104140	Resistor, 100kΩ ±5% ¼W
RE18	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
RE19	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE20	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE21	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
RE22	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
RE23	1	1		RT05752140	Resistor, 7.5kΩ ±5% ¼W
RE23			1	RT05822140	Resistor, 8.2kΩ ±5% ¼W
RE24	1	1		RT05752140	Resistor, 7.5kΩ ±5% ¼W
RE24			1	RT05822140	Resistor, 8.2kΩ ±5% ¼W
RE25	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE26	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE27	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE28	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE29	1	1	1	RT05123140	Resistor, 12kΩ ±5% ¼W
RE30	1	1	1	RT05123140	Resistor, 12kΩ ±5% ¼W
RE31	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
RE32	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
RE33	1	1	1	RT05334140	Resistor, 330kΩ ±5% ¼W
RE34	1	1	1	RT05334140	Resistor, 330kΩ ±5% ¼W
RE35	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
RE36	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
RE37	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
RE38	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
RE39	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
RE40	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
RE41	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
RE42	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
RE43	1	1	1	RT05123140	Resistor, 12kΩ ±5% ¼W
RE44	1	1	1	RT05123140	Resistor, 12kΩ ±5% ¼W
RE45	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
RE46	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
RE47	1	1	1	RT05334140	Resistor, 330kΩ ±5% ¼W
RE48	1	1	1	RT05334140	Resistor, 330kΩ ±5% ¼W
RE49	1	1	1	RD01040150	Variable Resistor, 100kΩ (B) Treble
RE51	1	1	1	RD01040150	Variable Resistor, 100kΩ (B) Mid
RE53	1	1	1	RD01040150	Variable Resistor, 100kΩ (B) Bass
RE55	1	1	1	RT05683140	Resistor, 68kΩ ±5% ¼W
RE56	1	1	1	RT05683140	Resistor, 68kΩ ±5% ¼W
RE57	1	1	1	RT05225140	Resistor, 2.2MΩ ±5% ¼W
RE58	1	1	1	RT05225140	Resistor, 2.2MΩ ±5% ¼W
RE59	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
RE60	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
RE61	1	1	1	RT05221140	Resistor, 220Ω ±5% ¼W
RE62	1	1	1	RT05221140	Resistor, 220Ω ±5% ¼W

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
RE63	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
RE64	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
RE65	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE66	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE67	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W
RE68	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W
RE69	1	1	1	RT05225140	Resistor, 2.2MΩ ±5% ¼W
RE70	1	1	1	RT05225140	Resistor, 2.2MΩ ±5% ¼W
RE71			1	RT05105140	Resistor, 1MΩ ±5% ¼W
RE72			1	RT05105140	Resistor, 1MΩ ±5% ¼W
RE73			1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
RE74			1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
RE75	1	1	1	RT05821140	Resistor, 820Ω ±5% ¼W
SE01	1	1	1	SP06050110	Pushswitch, Dolby, Tape, etc.
JK01 ~ JK08	8	8		YP10001130	Plug
JK09	1	1		YJ07000120	Jack
					PK01 DOLBY SOCKET BOARD
PK01	1	1		YA22180310	P.W. Board
	1	1		ZZ22180310	P.W. Board Assembly
SK01	1	1		SC01020240	Switch, Micro Switch
SK02	1	1		SC01020240	Switch, Micro Switch
JZ01 ~ JZ07	7	7	7	YP10001130	Plug
JZ08 ~ JZ17	10	10	10	YJ08000170	Jack, 10P PC Connector
					PZ01 DIAL LAMP BOARD
PZ01	1	1	1	YF22130050	P.W. Board
	1	1	1	ZZ22130050	P.W. Board Assembly
VZ01	1	1	1	IN10080070	Lamp, 8V 200mA
VZ02	1	1	1	IN10080070	Lamp, 8V 200mA
VZ03	1	1	1	IN10080070	Lamp, 8V 200mA
VZ04	1	1	1	IN10080070	Lamp, 8V 200mA
VZ05	1	1	1	IN10080070	Lamp, 8V 200mA
C001	1	1	1	DK18103010	Ceramic Cap., 0.01μF $^{+100}_{0}$% 50V
C002	1	1	1	DK18103010	Ceramic Cap., 0.01μF $^{+100}_{0}$% 50V
C003	1	1	1	EI10905010	Electrolytic Cap., 10000μF $^{+50}_{-10}$% 50V
C004	1	1	1	DK18103510	Ceramic Cap., 0.01μF 500V
C005		1		BF10400050	Cap. Comp., Printed Comp.
C005			1	DC07223510	Oil-Paper Cap., 0.022μF $^{+100}_{0}$% 450V
C006			1	DF17223800	Film Cap., 0.02μF 1000V
F001			1	FS10250800	Fuse, 2.5A SEMKO Type 20mm
F001	1	1		FS10400050	Fuse, 4A MGC 30mm
F002		1		FS20500910	Fuse, 5A MGP 30mm
G001	1			BF10400030	Cap. Comp., Printed Comp.
J001	1	1	1	BY04050010	Terminal, Ant. Terminal
J002	1	1	1	YT01010050	Terminal, Ground Terminal
J003	1	1	1	YT02040140	Terminal, Phono, Aux
J004	1	1	1	YT02040140	Terminal, Tape 1 In, Out
J005	1	1	1	YT02040140	Terminal, Tape 2 In, Out
J006	1	1	1	YT02040170	Terminal, Pre Out, Main In
J007	1	1	1	YT02010130	Terminal, Quad. Out

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
J008	1	1	1	YT03040160	Terminal, Spkr Terminal (System 1)
J009	1	1	1	YT03040160	Terminal, Spkr Terminal (System 2)
J010	1	1	1	YJ01001080	Jack
J011	1	1	1	YJ08000250	Jack, Lamp Socket
J012	1	1	1	YJ08000250	Jack, Lamp Socket
J013	1	1		YJ04000560	Jack, AC Outlet
J014	1	1		YJ04000560	Jack, AC Outlet
J015			1	BY03110010	Plug, Voltage Selector
J015	1	1		YJ08000120	Jack, Fuse Holder
J016			1	YL09030010	Terminal
J017			1	YJ08000220	Jack, Fuse Holder
L001	1	1	1	LF11200520	Ant. Coil, AM Rod Ant.
L002	1	1	1	LB30075260	Balun Coil
L003	1	1		TS19609010	Power Transformer
L003			1	TS19609020	Power Transformer
M001	1	1	1	IM11055080	DC Meter, Signal
M002	1	1	1	IM11055050	DC Meter, Tuning
Q001	1	1	1	HD20004290	Diode, S5VB
R001	1	1		RC10225120	Resistor, 2.2MΩ ±10% ½W
S001	1	1		SP02010280	Pushswitch, Power (U)
S001			1	SP04010250	Pushswitch, Power
S002	1	1	1	SP02010260	Pushswitch, Muting
V001	1	1	1	IN10080340	Lamp, Stereo
V002	1	1	1	IN10080430	Lamp, 8V 0.3A
V004	1	1	1	IN10080430	Lamp, 8V 0.3A
V005	1	1		IN10080340	Lamp, Dolby
W001			1	YC01900030	AC Power Cord
W001	1	1		YC02400220	AC Power Cord
C101	1	1	1	DD16120020	Ceramic Cap., 12pF ±10%
C102	1	1	1	DK18203030	Ceramic Cap., 0.02μF
C103	1	1	1	DK18203030	Ceramic Cap., 0.02μF
C104	1	1	1	DD11020010	Ceramic Cap., 2pF
C105	1	1	1	DK18203030	Ceramic Cap., 0.02μF
C106	1	1	1	DD16150040	Ceramic Cap., 15pF ±10%
C107	1	1	1	DD11020010	Ceramic Cap., 2pF
C108	1	1	1	DD12050010	Ceramic Cap., 5pF
C109	1	1	1	DD16101010	Ceramic Cap., 100pF ±10%
C110	1	1	1	DK18203030	Ceramic Cap., 0.02μF
C111	1	1	1	DD16101010	Ceramic Cap., 100pF ±10%
C112	1	1	1	DK18203030	Ceramic Cap., 0.02μF
C113	1	1	1	DD15150020	Ceramic Cap., 15pF ±5%
C114	1	1	1	DD10050030	Ceramic Cap., 5pF
C115	1	1	1	DD12050010	Ceramic Cap., 5pF
C116	1	1	1	DD16330020	Ceramic Cap., 33pF ±10%
C117	1	1	1	DD12100060	Ceramic Cap., 10pF
C118	1	1	1	DK18203030	Ceramic Cap., 0.02μF
C119	1	1	1	DD11020010	Ceramic Cap., 2pF
C120	1	1	1	CA32400080	Variable Cap.
C121	1	1	1	CT14200010	Trimming Cap.
C151	1	1	1	DK17103010	Ceramic Cap., 0.01μF ±20%
C152	1	1	1	DK17103010	Ceramic Cap., 0.01μF ±20%
C153	1	1	1	DK17102010	Ceramic Cap., 0.001μF ±20%
C154	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V
C155	1	1	1	DK18403020	Ceramic Cap., 0.04μF
C156	1	1	1	DF65391010	Film Cap., 390pF
C157	1	1	1	DD16150010	Ceramic Cap., 15pF ±10%
C158	1	1	1	DK18103010	Ceramic Cap., 0.01μF

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
C159	1	1	1	DK17103010	Ceramic Cap., 0.01μF ±20%
C160	1	1	1	DD16820010	Ceramic Cap., 82pF ±10%
C161	1	1	1	DK17103010	Ceramic Cap., 0.01μF ±20%
C162	1	1	1	DK18403020	Ceramic Cap., 0.04μF
C163	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V
C164	1	1	1	EA22601690	Electrolytic Cap., 22μF 16V
C165	1	1	1	EA47503590	Electrolytic Cap., 4.7μF 35V
C166	1	1	1	DK17102010	Ceramic Cap., 0.001μF ±20%
C167	1	1	1	DK18103010	Ceramic Cap., 0.01μF
C168	1	1	1	DK16682010	Ceramic Cap.,0.0068μF ±10%
C169	1	1	1	DK18403020	Ceramic Cap., 0.04μF
C170	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V
C171	1	1	1	DF16104010	Film Cap., 0.1μF ±10%
C172	1	1	1	EE47502510	Electrolytic Cap., 4.7μF 25V
F151	1	1	1	FF10045160	Ceramic Filter, AM CF SFD455D
J101	1	1	1	YP10001510	Plug
J102	1	1	1	YP10001510	Plug
J103	1	1	1	YP10001510	Plug
J105	1	1	1	YP10001510	Plug
J107	1	1	1	YP10001510	Plug
J109	1	1	1	YP10001510	Plug
J110	1	1	1	YP10001510	Plug
J111	1	1	1	YP10001510	Plug
L105	1	1	1	LC12220010	Choke Coil
L106	1	1	1	LI10239010	I.F.T.
L151	1	1	1	LC13320020	Choke Coil, 3.3μH
L152	1	1	1	LC13320020	Choke Coil, 3.3μH
L153	1	1	1	LC13320020	Choke Coil, 3.3μH
L154	1	1	1	LO10010480	Osc. Coil, AM
L155	1	1	1	LI10015010	I.F.T., AM
L156	1	1	1	LI10015060	I.F.T., AM
					P100 FM FRONT END BOARD
P100	1	1	1	YD29910010	P.W. Board
A201	1	1	1	AV01202060	Front End Assembly
Q101	1	1	1	HF40045180	F.E.T., 3SK45 B
Q102	1	1	1	HT305352B0	Transistor, 2SC535 (B, C)
Q103	1	1	1	HT313422B0	Transistor, 2SC1342 (B, C)
Q151	1	1	1	HC10019010	IC, HA1197
Q152	1	1	1	HT313272A0	Transistor, 2SC1327 (S, T)
Q153	1	1	1	HV00006120	Varistor, MV-203
R101	1	1	1	GD05105140	Resistor, 1MΩ ±5% ¼W
R102	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
R103	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
R104	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
R105	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
R106	1	1	1	GD05472140	Resistor, 4.7kΩ ±5% ¼W
R107	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R108	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R109	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R110	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R111	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
R151	1	1	1	RT05201140	Resistor, 200Ω ±5% ¼W
R152	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% ¼W
R153	1	1	1	RT05202140	Resistor, 2kΩ ±5% ¼W
R154	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% ¼W

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
R155	1	1	1	RT05151140	Resistor, 150Ω ±5% ¼W
R156	1	1	1	RA05020200	Trimming Resistor, 5kΩ
R157	1	1	1	RT05391140	Resistor, 390Ω ±5% ¼W
R158	1	1	1	RT05124140	Resistor, 120kΩ ±5% ¼W
R159	1	1	1	RT05104140	Resistor, 100kΩ ±5% ¼W
R160	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
R161	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
R162	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R163	1	1	1	RT05301140	Resistor, 300Ω ±5% ¼W
R164	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R165	1	1	1	RT05104140	Resistor, 100kΩ ±5% ¼W
R166	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% ¼W
R167	1	1	1	RT05242140	Resistor, 2.4kΩ ±5% ¼W
R169	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R170	1	1	1	RT05101140	Resistor, 100Ω ±5% ¼W
C201	1	1	1	DD15300010	Ceramic Cap., 30pF ±5%
C202	1	1	1	DK17103010	Ceramic Cap., 0.01μF ±20%
C203	1	1	1	DK17103010	Ceramic Cap., 0.01μF ±20%
C204	1	1	1	DK17103010	Ceramic Cap., 0.01μF ±20%
C205	1	1	1	DK18403020	Ceramic Cap., 0.04μF
C206	1	1	1	DK18403020	Ceramic Cap., 0.04μF
C207	1	1	1	DK18403020	Ceramic Cap., 0.04μF
C208	1	1	1	EA47503590	Electrolytic Cap., 4.7μF 35V
C209	1	1	1	DD15400040	Ceramic Cap., 40pF ±5%
C210	1	1	1	EA22601690	Electrolytic Cap., 22μF 16V
C211	1	1	1	EA47405010	Electrolytic Cap., 0.47μF 50V
C212	1	1	1	DK18403010	Ceramic Cap., 0.04μF
C213	1	1	1	DK18403010	Ceramic Cap., 0.04μF
C214	1	1	1	DK18403010	Ceramic Cap., 0.04μF
C215	1	1	1	DK18403010	Ceramic Cap., 0.04μF
C216	1	1	1	DK18403010	Ceramic Cap., 0.04μF
C217	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V
C218	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V
F201	1	1	1	FF11070050	Ceramic Filter, FM CF SFE10.7MD1
F202	1	1	1	FF11070050	Ceramic Filter, FM CF SFE10.7MD1
F203	1	1	1	FF11070050	Ceramic Filter, FM CF SFE10.7MD1
J201 ≀ J229	33	33	33	YP10001130	Plug
J231	1	1	1	YP10001130	Plug
J232	1	1	1	YP10001130	Plug
J233	1	1	1	YP10001130	Plug, AM Test Point
L202	1	1	1	LI14019010	I.F.T., FM
L203	1	1	1	LC11830010	Choke Coil, 18μH
					P200 FM MPX BOARD
P200	1	1	1	YD22042012	P.W. Board
	1	1		ZZ22092010	P.W. Board Assembly
			1	ZZ22098010	P.W. Board Assembly
Q201	1	1	1	HT310471C0	Transistor, 2SC1047 C
Q202	1	1	1	HC10021010	IC, HA1137W
Q203	1	1	1	HD20001210	Diode, 1S2473
Q204	1	1	1	HD20001210	Diode, 1S2473
Q205	1	1	1	HD20001210	Diode, 1S2473
Q206	1	1	1	HT308281D0	Transistor, 2SC828 S
Q207	1	1	1	HD20001210	Diode, 1S2473
R201	1	1	1	RT05151140	Resistor, 150Ω ±5% ¼W

- (U) for U.S.A.
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- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
R202	1	1	1	RT05331140	Resistor, 330Ω ±5% ¼W
R203	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
R204	1	1	1	RT05202140	Resistor, 2kΩ ±5% ¼W
R205	1	1	1	RT05331140	Resistor, 330Ω ±5% ¼W
R206	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R207	1	1	1	RT05101140	Resistor, 100Ω ±5% ¼W
R208	1	1	1	RT05334140	Resistor, 330kΩ ±5% ¼W
R209	1	1	1	RA05030120	Trimming Resistor, 50kΩ (B)
R210	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
R211	1	1	1	RT05104140	Resistor, 100kΩ ±5% ¼W
R212	1	1	1	RA01030250	Trimming Resistor, 10kΩ (B)
R213	1	1	1	RT05123140	Resistor, 12kΩ ±5% ¼W
R214	1	1	1	RT05331140	Resistor, 330Ω ±5% ¼W
R215	1	1	1	RA05030120	Trimming Resistor, 50kΩ (B)
R216	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
R217	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% ¼W
R218	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% ¼W
R219	1	1	1	RT05123140	Resistor, 12kΩ ±5% ¼W
R220	1	1	1	RT05391140	Resistor, 390Ω ±5% ¼W
R221	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R222	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R223	1	1	1	RT05470140	Resistor, 47Ω ±5% ¼W
R224	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
C301	1	1	1	EA47503590	Electrolytic Cap., 4.7μF 35V
C302	1	1	1	DF65361500	Film Cap., 360pF ±5%
C303	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V
C304	1	1	1	EE33502510	Electrolytic Cap., 3.3μF 25V
C305	1	1	1	EE10505010	Electrolytic Cap., 1μF 50V
C306	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V
C307	1	1	1	EQ22405010	Electrolytic Cap., 0.22μF 50V
C308	1	1	1	DF17473010	Film Cap., 0.047μF ±20%
C309	1	1	1	DD15500050	Ceramic Cap., 50pF ±5%
C310	1	1	1	DD15500050	Ceramic Cap., 50pF ±5%
C311	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C312	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C313	1	1	1	EA22505090	Electrolytic Cap., 2.2μF 50V
C314	1	1	1	EA22505090	Electrolytic Cap., 2.2μF 50V
C315	1	1		DF15102050	Film Cap., 1000pF ±5%
C315			1	DF15222050	Film Cap., 2200pF ±5%
C316	1	1		DF15102050	Film Cap., 1000pF ±5%
C316			1	DF15222050	Film Cap., 2200pF ±5%
C317	1	1	1	EA47405010	Electrolytic Cap., 0.47μF 50V
C318	1	1	1	EA47405010	Electrolytic Cap., 0.47μF 50V
C319	1	1	1	EE47502510	Electrolytic Cap., 4.7μF 25V
C320	1	1	1	EE47502510	Electrolytic Cap., 4.7μF 25V
C321	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V
C322	1	1	1	EE10601640	Electrolytic Cap., 10μF 16V
L301	1	1	1	LS35025010	M.P.X. Coil, LPF.
Q301	1	1	1	HT308281D0	Transistor, 2SC828 S
Q302	1	1	1	HC10020010	IC, HA1196
Q303	1	1	1	HT313441E0	Transistor, 2SC1344 E
Q304	1	1	1	HT313441E0	Transistor, 2SC1344 E
R301	1	1	1	RA01030310	Trimming Resistor, 10kΩ (B)
R302	1	1	1	RT05104140	Resistor, 100kΩ ±5% ¼W
R303	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R304	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R305	1	1	1	RT05104140	Resistor, 100kΩ ±5% ¼W

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
R306	1	1	1	RT05824140	Resistor, 820kΩ ±5% ¼W
R307	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R309	1	1	1	RT05154140	Resistor, 150kΩ ±5% ¼W
R310	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R311	1	1	1	RT05272140	Resistor, 2.7kΩ ±5% ¼W
R312	1	1	1	RT05101140	Resistor, 100Ω ±5% ¼W
R313	1	1	1	RT05303140	Resistor, 30kΩ ±5% ¼W
R314	1	1	1	RT05303140	Resistor, 30kΩ ±5% ¼W
R315	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R316	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R317	1	1	1	RA05040080	Trimming Resistor, 500kΩ (B)
R318	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R319	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
R320	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
R321	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W
R322	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W
R323	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W
R324	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W
R325	1	1	1	RT05243140	Resistor, 24kΩ ±5% ¼W
R326	1	1	1	RT05243140	Resistor, 24kΩ ±5% ¼W
R327	1	1	1	RT05394140	Resistor, 390kΩ ±5% ¼W
R328	1	1	1	RT05394140	Resistor, 390kΩ ±5% ¼W
R329	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
R330	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
R331	1	1	1	RT05391140	Resistor, 390Ω ±5% ¼W
R332	1	1	1	RT05391140	Resistor, 390Ω ±5% ¼W
R333	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% ¼W
R334	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% ¼W
R335	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R336	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R337	1	1	1	RT05101140	Resistor, 100Ω ±5% ¼W
R338	1	1	1	RT05101140	Resistor, 100Ω ±5% ¼W
R339	1	1	1	RT05101140	Resistor, 100Ω ±5% ¼W
R340	1	1	1	RT05201140	Resistor, 200Ω ±5% ¼W
C401	1	1	1	EV22502560	Electrolytic Cap., 2.2μF ±20% 25V
C402	1	1	1	EV22502560	Electrolytic Cap., 2.2μF ±20% 25V
C403	1	1	1	DD16201010	Ceramic Cap., 200pF ±10% 50V
C404	1	1	1	DD16201010	Ceramic Cap., 200pF ±10% 50V
C405	1	1	1	DD16151010	Ceramic Cap., 150pF ±10% 50V
C406	1	1	1	DD16151010	Ceramic Cap., 150pF ±10% 50V
C407	1	1	1	EV22600660	Electrolytic Cap., 22μF ±20% 6.3V
C408	1	1	1	EV22600660	Electrolytic Cap., 22μF ±20% 6.3V
C409	1	1	1	DD16300010	Ceramic Cap., 30pF ±10% 50V
C410	1	1	1	DD16300010	Ceramic Cap., 30pF ±10% 50V
C411	1	1	1	EA47601690	Electrolytic Cap., 47μF $^{+50}_{-10}$% 16V
C412	1	1	1	EA47601690	Electrolytic Cap., 47μF $^{+50}_{-10}$% 16V
C413	1	1	1	DD16101010	Ceramic Cap., 100pF ±10% 50V
C414	1	1	1	DD16101010	Ceramic Cap., 100pF ±10% 50V
C415	1	1	1	EE22503510	Electrolytic Cap., 2.2μF ±20% 35V
C416	1	1	1	EE22503510	Electrolytic Cap., 2.2μF ±20% 35V
C417	1	1	1	DF15152010	Film Cap., 0.0015μF ±5% 50V
C418	1	1	1	DF15152010	Film Cap., 0.0015μF ±5% 50V
C419	1	1	1	DF15562010	Film Cap., 0.0056μF ±5% 50V
C420	1	1	1	DF15562010	Film Cap., 0.0056μF ±5% 50V
C421	1	1	1	EA10705090	Electrolytic Cap., 100μF $^{+50}_{-10}$% 50V
C422	1	1	1	EA47601090	Electrolytic Cap., 47μF $^{+50}_{-10}$% 10V

• (U) for U.S.A.
• (C) for Canada
• (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
J401 ≀ J438	38	38	38	YP10001130	Plug
L401	1	1	1	LC11540020	Choke Coil, 150μH
					P400 PHONO AMP. & SELECTOR BOARD
P400	1	1	1	YK22050210	P.W. Board
	1	1	1	ZZ22050210	P.W. Board Assembly
Q401	1	1	1	HT316811B0	Transistor, 2SC1681 (BL)
Q402	1	1	1	HT316811B0	Transistor, 2SC1681 (BL)
Q403	1	1	1	HT316812A0	Transistor, 2SC1681 (GR, BL)
Q404	1	1	1	HT316812A0	Transistor, 2SC1681 (GR, BL)
Q405	1	1	1	HT316811B0	Transistor, 2SC1681 (BL)
Q406	1	1	1	HT316811B0	Transistor, 2SC1681 (BL)
R401	1	1	1	RT05913140	Resistor, 91kΩ ±5% ¼W
R402	1	1	1	RT05913140	Resistor, 91kΩ ±5% ¼W
R403	1	1	1	RT05471140	Resistor, 470Ω ±5% ¼W
R404	1	1	1	RT05471140	Resistor, 470Ω ±5% ¼W
R405	1	1	1	RT05394140	Resistor, 390kΩ ±5% ¼W
R406	1	1	1	RT05394140	Resistor, 390kΩ ±5% ¼W
R407	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R408	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R409	1	1	1	RT05681140	Resistor, 680Ω ±5% ¼W
R410	1	1	1	RT05681140	Resistor, 680Ω ±5% ¼W
R411	1	1	1	RT05104140	Resistor, 100kΩ ±5% ¼W
R412	1	1	1	RT05104140	Resistor, 100kΩ ±5% ¼W
R413	1	1	1	RT05303140	Resistor, 30kΩ ±5% ¼W
R414	1	1	1	RT05303140	Resistor, 30kΩ ±5% ¼W
R415	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
R416	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W
R417	1	1	1	RT05182140	Resistor, 1.8kΩ ±5% ¼W
R418	1	1	1	RT05182140	Resistor, 1.8kΩ ±5% ¼W
R419	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W
R420	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W
R421	1	1	1	RT05224140	Resistor, 220kΩ ±5% ¼W
R422	1	1	1	RT05224140	Resistor, 220kΩ ±5% ¼W
R423	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R424	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R425	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% ¼W
R426	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% ¼W
R427	1	1	1	RT05564140	Resistor, 560kΩ ±5% ¼W
R428	1	1	1	RT05564140	Resistor, 560kΩ ±5% ¼W
R429	1	1	1	RT05101140	Resistor, 100Ω ±5% ¼W
R430	1	1	1	GF05330120	Resistor, 33Ω ±5% ½W
R431	1	1		GF05390140	Resistor, 39Ω ±5% ¼W
S401	1	1	1	SR10050130	Rotary Switch, Selector
C701	1	1	1	EE33502540	Electrolytic Cap., 3.3μF ±20% 25V
C702	1	1	1	EE33502540	Electrolytic Cap., 3.3μF ±20% 25V
C703	1	1	1	DD16201010	Ceramic Cap., 200pF ±10% 50V
C704	1	1	1	DD16201010	Ceramic Cap., 200pF ±10% 50V
C705	1	1	1	EE47601640	Electrolytic Cap., 47μF ±20% 16V
C706	1	1	1	EE47601640	Electrolytic Cap., 47μF ±20% 16V
C707	1	1	1	DD11050500	Ceramic Cap., 5pF ±0.25pF 500V
C708	1	1	1	DD11050500	Ceramic Cap., 5pF ±0.25pF 500V
C709	1	1	1	EA47605090	Electrolytic Cap., 47μF $^{+50}_{-20}$% 50V
C710	1	1	1	EA47605090	Electrolytic Cap., 47μF $^{+50}_{-20}$% 50V
C711	1	1	1	DF16103050	Film Cap., 0.01μF ±10% 50V
C712	1	1	1	DF16103050	Film Cap., 0.01μF ±10% 50V
C713	1	1	1	DF16103050	Film Cap., 0.01μF ±10% 50V
C714	1	1	1	DF16103050	Film Cap., 0.01μF ±10% 50V
C715	1	1	1	DF17104010	Film Cap., 0.1μF ±20% 50V
C716	1	1	1	DF17104010	Film Cap., 0.1μF ±20% 50V
C717	1	1	1	DF17104010	Film Cap., 0.1μF ±20% 50V
C718	1	1	1	DF17104010	Film Cap., 0.1μF ±20% 50V
C719	1	1	1	EE10601640	Electrolytic Cap., 10μF ±20% 16V
C720	1	1	1	EE10601640	Electrolytic Cap., 10μF ±20% 16V
C721	1	1	1	EE10601640	Electrolytic Cap., 10μF ±20% 16V
C722	1	1	1	EE10601640	Electrolytic Cap., 10μF ±20% 16V
C723	1	1	1	DK16101500	Ceramic Cap., 100pF ±10% 500V
C724	1	1	1	DK16101500	Ceramic Cap., 100pF ±10% 500V
C725	1	1	1	DK16101500	Ceramic Cap., 100pF ±10% 500V
C726	1	1	1	DK16101500	Ceramic Cap., 100pF ±10% 500V
C727	1	1	1	DF17104520	Film Cap., 0.1μF ±20% 200V
C728	1	1	1	DF17104520	Film Cap., 0.1μF ±20% 200V
C729	1	1	1	EA22705090	Electrolytic Cap., 220μF $^{+50}_{-20}$% 50V
C730	1	1	1	EA47601690	Electrolytic Cap., 47μF $^{+50}_{-20}$% 16V
C731	1	1	1	EA22701090	Electrolytic Cap., 220μF $^{+50}_{-20}$% 10V
C732	1	1	1	DK18103510	Ceramic Cap., 0.01μF $^{+100}_{0}$% 500V
C733	1	1	1	EA47706310	Electrolytic Cap., 470μF $^{+50}_{-20}$% 63V
C734	1	1	1	EA10706310	Electrolytic Cap., 100μF $^{+50}_{-20}$% 63V
C735	1	1	1	EA33605090	Electrolytic Cap., 33μF $^{+50}_{-20}$% 50V
C736	1	1	1	DF17473050	Film Cap., 0.047μF ±20% 50V
C737	1	1	1	EA10701690	Electrolytic Cap., 100μF $^{+50}_{-20}$% 16V
C738	1	1	1	EA10605090	Electrolytic Cap., 10μF $^{+50}_{-20}$% 50V
C739	1	1	1	EA10801690	Electrolytic Cap., 1000μF $^{+50}_{-20}$% 16V
C740	1	1	1	EE10605040	Electrolytic Cap., 10μF ±20% 50V
F701	1	1		FS10100080	Fuse, MGC 1A 30mm
F701			1	FS10100800	Fuse, SGA 1A 20mm SEMKO
F702	1	1		FS10200060	Fuse, MGA 2A 30mm
F702			1	FS10200800	Fuse, SGA 2A 20mm SEMKO
J701 ≀ J728	28	28	28	YP10001130	Plug
J729 ≀ J732	4	4	4	YJ08000210	Jack, Fuse Holder
J733 ≀ J736	4	4	4	YJ05000260	Jack, Tr. Socket
J737	1	1	1	YP10001130	Plug, Pin
J738	1	1	1	YP10001130	Plug, Pin
J739	1	1	1	YP10001130	Plug, Pin
L701	1	1	1	LC22620010	Choke Coil, 2.6μH
L702	1	1	1	LC22620010	Choke Coil, 2.6μH
L703	1	1	1	LY40240050	Relay
					P700 MAIN AMP. & POWER SUPPLY BOARD
P700	1	1	1	YG22070010	P.W. Board
	1	1	1	ZZ22070010	P.W. Board Assembly
Q701	1	1	1	HT107502B0	Transistor, 2SA 750 (T, U)
Q702	1	1	1	HT107502B0	Transistor, 2SA 750 (T, U)
Q703	1	1	1	HT107502B0	Transistor, 2SA 750 (T, U)
Q704	1	1	1	HT107502B0	Transistor, 2SA 750 (T, U)
Q705	1	1	1	HT318853B0	Transistor, 2SC1885 (Q, R, S)
Q706	1	1	1	HT318853B0	Transistor, 2SC1885 (Q, R, S)

- (U) for U.S.A.
- (C) for Canada.
- (N) for Europe

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
Q707	1	1	1	HT31567280	Transistor, 2SC1567 (Q, R)
Q708	1	1	1	HT31567280	Transistor, 2SC1567 (Q, R)
Q709	1	1	1	HT10794280	Transistor, 2SA 794 (Q, R)
Q710	1	1	1	HT10794280	Transistor, 2SA 794 (Q, R)
Q711	1	1	1	HT403883A0	Transistor, 2SD 388 (S, R, Q)
Q712	1	1	1	HT403883A0	Transistor, 2SD 388 (S, R, Q)
Q713	1	1	1	HT205413A0	Transistor, 2SB 541 (S, R, Q)
Q714	1	1	1	HT205413A0	Transistor, 2SB 541 (S, R, Q)
Q715	1	1	1	HT309451Q0	Transistor, 2SC 945 (Q)
Q716	1	1	1	HT309451Q0	Transistor, 2SC 945 (Q)
Q717	1	1	1	HT107331Q0	Transistor, 2SA 733 (Q)
Q718	1	1	1	HT107331Q0	Transistor, 2SA 733 (Q)
Q719	1	1	1	HV00003120	Varistor, MV-13
Q720	1	1	1	HV00003120	Varistor, MV-13
Q721	1	1	1	HV00003120	Varistor, MV-13
Q722	1	1	1	HV00003120	Varistor, MV-13
Q723	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q724	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q725	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q726	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q727	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q728	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q729	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q730	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q731	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q732	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q733	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q734	1	1	1	HD20002210	Diode, 1S2472 (GR)
Q735	1	1	1	HH00003030	Thermistor, STD-04
Q736	1	1	1	HH00003030	Thermistor, STD-04
Q737	1	1	1	HD20005010	Diode, W06B
Q738	1	1	1	HD20005010	Diode, W06B
Q739	1	1	1	HD20005010	Diode, W06B
Q740	1	1	1	HD20005010	Diode, W06B
Q741	1	1	1	HV00005080	Varistor, STV-3H (Y)
Q742	1	1	1	HV00005080	Varistor, STV-3H (Y)
Q743	1	1	1	HT309452A0	Transistor, 2SC 945 (R, Q)
Q744	1	1	1	HT309452A0	Transistor, 2SC 945 (R, Q)
Q745	1	1	1	HT313182C0	Transistor, 2SC1318 (R, S)
Q746	1	1	1	HD20003210	Diode, 1S2471 (BK)
Q747	1	1	1	HD20011030	Diode, DS-131B
Q748	1	1	1	HD20012030	Diode, DS-132B
Q749	1	1	1	HD20005010	Diode, W06B
Q750	1	1	1	HT318853B0	Transistor, 2SC1885 (Q, R, S)
Q751	1	1	1	HT309452A0	Transistor, 2SC 945 (P, Q)
Q752	1	1	1	HD30025090	Zener, WZ-15C
Q753	1	1	1	HT403302A0	Transistor, 2SD330 (D, E)
Q754	1	1	1	HD20005010	Diode, W06B
R701	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R702	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R703	1	1	1	RT05333140	Resistor, 33kΩ ±5% ¼W
R704	1	1	1	RT05333140	Resistor, 33kΩ ±5% ¼W
R705	1	1	1	RT05682140	Resistor, 6.8kΩ ±5% ¼W
R706	1	1	1	RT05682140	Resistor, 6.8kΩ ±5% ¼W
R707	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R708	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R709	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W
R710	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W

REF. DESIG.	Q'TY U	C	N	PART NO.	DESCRIPTION
R711	1	1	1	RA05020200	Trimming Resistor, 5kΩ (B)
R712	1	1	1	RA05020200	Trimming Resistor, 5kΩ (B)
R713	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
R714	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
R715	1	1	1	RT05224140	Resistor, 220kΩ ±5% ¼W
R716	1	1	1	RT05224140	Resistor, 220kΩ ±5% ¼W
R717	1	1	1	RT05302140	Resistor, 3kΩ ±5% ¼W
R718	1	1	1	RT05302140	Resistor, 3kΩ ±5% ¼W
R719	1	1	1	RT05333140	Resistor, 33kΩ ±5% ¼W
R720	1	1	1	RT05333140	Resistor, 33kΩ ±5% ¼W
R721	1	1	1	GF05330140	Resistor, 33Ω ±5% ¼W
R722	1	1	1	GF05330140	Resistor, 33Ω ±5% ¼W
R723	1	1	1	RT05302140	Resistor, 3kΩ ±5% ¼W
R724	1	1	1	RT05302140	Resistor, 3kΩ ±5% ¼W
R725	1	1	1	RT05302140	Resistor, 3kΩ ±5% ¼W
R726	1	1	1	RT05302140	Resistor, 3kΩ ±5% ¼W
R727	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% ¼W
R728	1	1	1	GF05330120	Resistor, 33Ω ±5% ½W
R729	1	1	1	RT05820140	Resistor, 82Ω ±5% ¼W
R730	1	1	1	RT05820140	Resistor, 82Ω ±5% ¼W
R731	1	1	1	RA01020210	Trimming Resistor, 1kΩ (B)
R732	1	1	1	RA01020210	Trimming Resistor, 1kΩ (B)
R733	1	1	1	RT05161140	Resistor, 160Ω ±5% ¼W
R734	1	1	1	RT05161140	Resistor, 160Ω ±5% ¼W
R735	1	1	1	GF05271140	Resistor, 270Ω ±5% ¼W
R736	1	1	1	GF05271140	Resistor, 270Ω ±5% ¼W
R737	1	1	1	GF05271140	Resistor, 270Ω ±5% ¼W
R738	1	1	1	GF05271140	Resistor, 270Ω ±5% ¼W
R739	1	1	1	GF05221140	Resistor, 220Ω ±5% ¼W
R740	1	1	1	GF05221140	Resistor, 220Ω ±5% ¼W
R741	1	1	1	GF05221140	Resistor, 220Ω ±5% ¼W
R742	1	1	1	GF05221140	Resistor, 220Ω ±5% ¼W
R743	1	1	1	GF05221140	Resistor, 220Ω ±5% ¼W
R744	1	1	1	GF05221140	Resistor, 220Ω ±5% ¼W
R745	1	1	1	GF05271140	Resistor, 270Ω ±5% ¼W
R746	1	1	1	GF05271140	Resistor, 270Ω ±5% ¼W
R747	1	1	1	GF05222140	Resistor, 2.2kΩ ±5% ¼W
R748	1	1	1	GF05222140	Resistor, 2.2kΩ ±5% ¼W
R749	1	1	1	GF05242140	Resistor, 2.4kΩ ±5% ¼W
R750	1	1	1	GF05242140	Resistor, 2.4kΩ ±5% ¼W
R751	1	1	1	GF05273140	Resistor, 27kΩ ±5% ¼W
R752	1	1	1	GF05273140	Resistor, 27kΩ ±5% ¼W
R753	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W
R754	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W
R755	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W
R756	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W
R757	1	1	1	GF05151120	Resistor, 150Ω ±5% ½W
R758	1	1	1	GF05151120	Resistor, 150Ω ±5% ½W
R759	1	1	1	GF05151120	Resistor, 150Ω ±5% ½W
R760	1	1	1	GF05151120	Resistor, 150Ω ±5% ½W
R761	1	1	1	GJ05100020	Resistor, 10Ω ±5% 2W
R762	1	1	1	GJ05100020	Resistor, 10Ω ±5% 2W
R763	1	1	1	GW10392030	Resistor, 0.39Ω ±10% 3W
R764	1	1	1	GW10392030	Resistor, 0.39Ω ±10% 3W
R765	1	1	1	GW10392030	Resistor, 0.39Ω ±10% 3W
R766	1	1	1	GW10392030	Resistor, 0.39Ω ±10% 3W
R767	1	1	1	RC10022120	Resistor, 2.2Ω ±10% ½W

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	QTY U	C	N	PART NO.	DESCRIPTION
R768	1	1	1	RC10022120	Resistor, 2.2Ω ±10% ½W
R769	1	1	1	RC10562120	Resistor, 5.6kΩ ±10% ½W
R770	1	1	1	RC10562120	Resistor, 5.6kΩ ±10% ½W
R771	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R772	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W
R773	1	1	1	RT05682140	Resistor, 6.8kΩ ±5% ¼W
R774	1	1	1	RT05393140	Resistor, 39kΩ ±5% ¼W
R775	1	1	1	RT05154140	Resistor, 150kΩ ±5% ¼W
R776	1	1	1	GJ05391010	Resistor, 390Ω ±5% 1W
R777	1	1	1	GJ05331020	Resistor, 330Ω ±5% 2W
R778	1	1	1	GJ05331020	Resistor, 330Ω ±5% 2W
R779	1	1	1	GU05151120	Resistor, 150Ω ±5% ½W
R780	1	1	1	GU05151120	Resistor, 150Ω ±5% ½W
R781	1	1	1	GS10101070	Resistor, 100Ω ±10% 7W
R782	1	1	1	GF05220120	Resistor, 22Ω ±5% ½W
R783	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% ¼W
R784	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% ¼W
R785	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% ¼W
R786	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R787	1	1	1	RA05020200	Trimming Resistor, 5kΩ (B)
R788	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
R789	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W
S701	1	1	1	SP04020200	Pushswitch,

18. TECHNICAL SPECIFICATIONS

FOR U.S.A. MODEL ONLY

AMPLIFIER SECTION:

RATED POWER OUTPUT, MINIMUM CONTINUOUS AVERAGE POWER PER CHANNEL, BOTH CHANNELS DRIVEN. 38W
POWER BAND . . . . . 20 Hz to 20 kHz
TOTAL HARMONIC DISTORTION 0.08%
LOAD IMPEDANCE . . . . . 8 OHMS
RATED POWER OUTPUT, MINIMUM CONTINUOUS AVERAGE POWER PER CHANNEL, BOTH CHANNELS DRIVEN. 48W
POWER BAND . . . . . 20 Hz to 20 kHz
TOTAL HARMONIC DISTORTION 0.1%
LOAD IMPEDANCE . . . . . 4 OHMS

I.M. Distortion
(I.H.F. method, 60 Hz and 7 kHz mixed 4:1 at rated power output)
at 8 ohm load impedance 0.08%
at 4 ohm load impedance 0.1%
Damping Factor (at 20 Hz) 45
Sensitivity (at MAIN IN) 1.5V
Impedance (at MAIN IN) . . . . . 33k ohms
Frequency Response for Power Amp Only
(at 1 Watt output, 20 Hz to 20 kHz) . . . . . ±0.25 dB

PREAMPLIFIER SECTION:

Phono
Input Overload at 1 kHz . . . . . 100 mV
Equivalent Input Noise 1.5μV
Dynamic Range
(Dynamic Range is the ratio of input overload to equivalent input noise) . . . . . 96 dB
Input Sensitivity . . . . . 1.8 mV
Input Impedance . . . . . 47k ohms
Input Capacitance . . . . . 100 pF
Frequency Response, RIAA 20 Hz to 20 kHz . . . . . ±1.0 dB
Signal-to-Noise Ratio
(at rated output and 7.75 mV input) . . . . . 76 dB
High Level (Aux and Tape)
Input Sensitivity . . . . . 180 mV
Input Impedance . . . . . 20k ohms
Frequency Response
(includes power amp) . . . . . 10 Hz to 60 kHz ± 1.25 dB
Signal-to-Noise Ratio
(ref. to rated output and 775 mV input) . . . . . 90 dB
Output Levels
Tape Out (ref. 7.75 mV at Phono inputs) . . . . . 775 mV
Pre-Out (ref. 180 mV at Aux inputs) 1.5V
(ref. 500 mV at Aux inputs, main amp disconnected) 4.2V
Output Impedance
Tape Out . . . . . 600 ohms
Pre-Out . . . . . 900 ohms

FM TUNER SECTION:

Sensitivity
IHF Usable . . . . . 10.8 dBf (1.9μV)
IHF 50 dB Quieting (Mono) . . . . . 16.1 dBf (3.2μV)
(Stereo) . . . . . 37.3 dBf (40μV)
Quieting Slope (Mono)
RF Input for 30 dB Quieting . . . . . 9.3 dBf (1.6μV)
Quieting at:
20 dBf (5.5μV) . . . . . 55 dB
25 dBf (10μV) . . . . . 60 dB
40 dBf (55μV) . . . . . 70 dB
65 dBf (1000μV) . . . . . 75 dB
Quieting Slope (Stereo)
Quieting at:
30 dBf (17μV) . . . . . 42 dB
40 dBf (55μV) . . . . . 53 dB
50 dBf (173μV) . . . . . 58 dB
65 dBf (1000μV) . . . . . 65 dB
Distortion (Mono) at 65 dBf (1000μV)
100 Hz 0.25%
1000 Hz 0.15%
6000 Hz 0.35%
Distortion (Stereo) at 65 dBf (1000μV)
100 Hz 0.35%
1000 Hz 0.3%
6000 Hz 0.55%
Distortion (Mono and Stereo)
at 50 dB Quieting, 1000 Hz 0.6%
Hum and Noise
at 65 dBf (1000μV)
Mono . . . . . 73 dB
Frequency Response
30 Hz to 15 kHz
Mono . . . . . +0.2 dB, −1.5 dB
Stereo . . . . . ±1.5 dB
Capture Ratio at 65 dBf (1000μV) . . . . . 1.0 dB
Alternate Channel Selectivity . . . . . 70 dB
Spurious Response Rejection . . . . . 90 dB
Image Response Rejection . . . . . 60 dB
I.F. Rejection (Balanced) . . . . . 90 dB
A.M. Suppression . . . . . 50 dB
Stereo Separation
100 Hz . . . . . 40 dB
1000 Hz . . . . . 45 dB
10 kHz . . . . . 40 dB
Subcarrier Rejection . . . . . 60 dB

AM TUNER SECTION:

IHF Usable Sensitivity 15μV
Distortion (THD), 30% Modulation 0.5%
Signal-to-Noise Ratio . . . . . 50 dB
Alternate Channel Selectivity . . . . . 46 dB
Image Rejection . . . . . 45 dB
Spurious Response Rejection . . . . . 60 dB
I.F. Rejection . . . . . 40 dB

GENERAL:

Power Requirements . . . . . 120V AC, 60 Hz
Power Consumption at rated output, both channels operating 170W
Idling Power (Volume Control at zero) 27W
Dimensions:
Panel Width . . . . . 440 mm (17-5/16 inches)
Panel Height . . . . . 137 mm (5-3/8 inches)
Depth . . . . . 362 mm (14-1/2 inches)
Weight:
Unit alone . . . . . 12.5 kg (27.5 lbs.)
Packed for Shipment . . . . . 15.0 kg (33.0 lbs)

FOR EUROPEAN MODEL ONLY

AUDIO SECTION

POWER OUTPUT AT 1% DISTORTION **72W**
RATED POWER OUTPUT, 1 kHz **53W**
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT, 1 kHz **0.1%**
I.M. DISTORTION AT RATED POWER OUTPUT
(I.H.F. METHOD, 300 Hz AND 10 kHz MIXED 4:1 AT RATED POWER OUTPUT) **0.1%**
POWER BANDWIDTH, 1/2 RATED POWER OUTPUT . . . . . **8 Hz ~ 30 kHz**
LOAD IMPEDANCE . . . . . **4 OHMS**
POWER OUTPUT AT 1% DISTORTION **52W**
RATED POWER OUTPUT, 1 kHz **42W**
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT, 1 kHz **0.08%**
I.M. DISTORTION AT RATED POWER OUTPUT
(I.H.F. METHOD, 300 Hz AND 10 kHz MIXED 4:1 AT RATED POWER OUTPUT) **0.1%**
POWER BANDWIDTH, 1/2 RATED POWER OUTPUT . . . . . **8 Hz ~ 30 kHz**
LOAD IMPEDANCE . . . . . **8 OHMS**

Damping Factor, SP Output
40 Hz 60
1 kHz 60
12.5 kHz 40
Frequency Response
Phono ± 2 dB . . . . . 18 Hz ~ 30 kHz
Aux ±1.5 dB . . . . . 10 Hz ~ 40 kHz
Main In ±1.5 dB . . . . . 10 Hz ~ 40 kHz
Signal-to-Noise Ratio, 1 kHz
Phono . . . . . 50 dB
Aux . . . . . 50 dB
Main In . . . . . 55 dB
Input Sensitivity, 1 kHz (Rated Input Voltage)
Phono . . . . . 1.8 mV
Aux . . . . . 180 mV
Main In 1.5V
Input Impedance, 1 kHz
Phono . . . . . 47k ohms
Aux . . . . . 20k ohms
Main In . . . . . 33k ohms
Phono Equivalent Input Noise 1.5μV
Phono Dynamic Range . . . . . 92 dB
Phono Input Capacitance . . . . . 100 pF
Channel Balance
Phono 0 ~ −40 dB . . . . . 2.5 dB
Aux 40 ~ 16 kHz . . . . . 2.0 dB
Main In . . . . . 1.0 dB
Interchannel Crosstalk
Phono 1 kHz . . . . . 38 dB
250 Hz ~ 10 kHz . . . . . 30 dB
Aux 1 kHz . . . . . 43 dB
250 Hz ~ 10 kHz . . . . . 30 dB
Tape 1 kHz . . . . . 43 dB
250 Hz ~ 10 kHz . . . . . 30 dB
Main In 1 kHz . . . . . 55 dB
250 Hz ~ 10 kHz . . . . . 50 dB
Intersource Crosstalk, Worst Point
1 kHz . . . . . 43 dB
250 Hz ~ 10 kHz . . . . . 30 dB
Output Voltage, 1 kHz
Tape Out 0.18V
Pre Out 1.5V
Output Impedance, 1 kHz
Tape Out . . . . . 50 ohms
Pre Out . . . . . 600 ohms
Overload Margin, 1 kHz
Phono . . . . . 33 dB
Aux . . . . . 50 dB
Power Consumption
Idling 30W
Rated Power, 1 kHz 175W

FM TUNER SECTION:
Frequency Range . . . . . 87.5 ~ 108 MHz
Usable Sensitivity 40 kHz Deviation, 98 MHz
Mono S/N 26 dB 1.6μV
Stereo S/N 46 dB 47μV
Alternate Channel Selectivity 98 MHz, ±300 kHz . . . . . 50 dB
Image Response Rejection, 98 MHz . . . . . 60 dB
IF Rejection, 98 MHz . . . . . 80 dB
Spurious Response Rejection, 98 MHz . . . . . 80 dB
AM Suppression, 98 MHz . . . . . 50 dB
Signal-to-Noise Ratio at 98 MHz
Un-weighted Mono . . . . . 65 dB
Stereo . . . . . 58 dB
Weighted Mono . . . . . 68 dB
Stereo . . . . . 62 dB
Pilot Signal & Subcarrier Rejection
19 kHz . . . . . 60 dB
38 kHz . . . . . 65 dB
Total Harmonic Distortion at 98 MHz
Mono 0.2%
Stereo 0.4%
Frequency Response
30 Hz ~ 15 kHz . . . . . +0.2 dB, −2.0 dB
Separation
250 ~ 6.3 kHz . . . . . 40 dB
6.3 kHz ~ 12.5 kHz . . . . . 35 dB
Channel Balance . . . . . 0.5 dB
Output Voltage, 1 kHz . . . . . 565 mV
Output Impedance, 1 kHz . . . . . 2.3k ohms
Acceptable Load Impedance, 1 kHz . . . . . 47k ohms
Antenna Terminals
Balanced . . . . . 300 ohms
Unbalanced . . . . . 75 ohms

AM TUNER SECTION:
Frequency Range . . . . . 515 ~ 1650 kHz
Usable Sensitivity 26 dB S/N 30% Mod., 1 MHz 25μV
Selectivity 1 MHz, ±9 kHz . . . . . 20 dB
Image Rejection, 1 MHz . . . . . 18 dB
IF Rejection, 1 MHz . . . . . 3 dB
Spurious Response Rejection, 1 MHz . . . . . 60 dB
Signal-to-Noise Ratio, 1 MHz . . . . . 52 dB
Frequency Response 1 MHz, ±3 dB . . . . . 40 Hz ~ 2.3 kHz
Total Harmonic Distortion, 1 MHz 0.5%

GENERAL:
Power Requirements . . . . . 220V ~, 50 Hz
(E and N versions are featuring an external voltage selector for use on 110/120/240V. Other versions can be converted by a qualified technician to operate on 110/120/240V.)
Power Consumption at rated output, both channels operating . . . . . 170W ± 15W
Idling Power . . . . . 33W ± 7W
Semiconductor Complement
Integrated Circuits 3
Transistors 46
Diodes 34
Field Effect Transistors 1
Dimensions
Panel Width . . . . . 440 mm (17-5/16 inches)
Panel Height . . . . . 137 mm (5-25/64 inches)
Depth . . . . . 365 mm (14-3/8 inches)
Weight
Unit Alone . . . . . 12.5 kg (27.5 lbs)
Packed for Shipment . . . . . 15.0 kg (33.0 lbs)

Model 238B

marantz

MARANTZ CO., INC. · P. O. BOX 577 · CHATSWORTH, CALIFORNIA · 91311

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